JUL 07

0631

I 53 2: C 17/3/RECORD

U.S. Department of the Interior
Bureau of Land Management
Wyoming State Office

Rawlins Field Office June 1999

RECORD OF DECISION
Carbon Basin Coal Project

99-0 31578

MISSION STATEMENT

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

BLM/WY/PL-99/013+1320

I

U.S. DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT
RAWLINS FIELD OFFICE

RECORD OF DECISION

ELK MOUNTAIN/SADDLEBACK HILLS
COAL LEASE APPLICATION
WYW139975

CARBON COUNTY, WYOMING

II

TABLE OF CONTENTS

INTRODUCTION 1

DECISION 1

- National Environmental Policy Act 2

ALTERNATIVES CONSIDERED INCLUDING THE PROPOSED ACTION 2

- Alternative 1: No Action 2
- Alternative 2: Proposed Action 2
  - Transportation Options 4
- Alternatives Considered but Not Analyzed in Detail 4

MANAGEMENT CONSIDERATIONS/RATIONALE FOR DECISION 5

- Bureau of Land Management Statutory Requirements 5
  - Mineral Leasing Act of 1920 5
  - National Environmental Policy Act of 1969 5
  - Mining and Minerals Policy Act of 1970 5
  - Federal Coal Leasing Amendments Act of 1976 (FCLAA) 6
  - Federal Land Policy and Management Act of 1976 6
- Summary of Environmental Impacts 6
  - Air Quality 6
  - Topography 7
  - Geology and Minerals 7
  - Paleontological Resources 7
  - Soils 7
  - Surface Water 7
  - Ground Water 8
  - Noise and Odor 8
  - Vegetation 8
  - Wildlife and Fisheries 8
  - Threatened and Endangered and Candidate Species 9
  - Cultural and Historic Resources 9
  - Socioeconomics 10
  - Land Use 10
  - Visual Resources 11
  - Hazardous Materials 11
- Public Involvement 11
  - Present a No Action Alternative That Includes No Mining 11
  - Impacts to Adjacent Landowneres 12
  - Impacts to the Platte River System Including the Medicine Bow River 12
  - Letters Received on the EIS 13
    - Office of Federal Land Policy 14
      - Response 15
    - United States Environmental Protection Agency 16
      - Response 18

Carbon County Planning Commission ... 20
Response ... 21
N/S Livestock Company ... 22
Response ... 24
Budd-Falen Law Offices, P.C. ... 25
Response ... 27
Mitigation and Monitoring ... 28
Applicant-Committed Mitigation ... 28
Federal Col Lease WYW139975 Special Stipulations ... 28

RECOMMENDATION ... 30

APPROVED ... 31
Appeal Procedure ... 31

APPENDIX 1

APPENDIX 2

APPENDIX 3

APPENDIX 4

U.S. DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT
RECORD OF DECISION
ELK MOUNTAIN/SADDLEBACK HILLS COAL LEASE APPLICATION
WYW139975
CARBON COUNTY, WYOMING

INTRODUCTION

The Final Environmental Impact Statement (FEIS) for the Carbon Basin Coal Project was released to the public on January 8, 1999. This document considered and evaluated the impacts of issuing the proposed Elk Mountain/Saddleback Hills competitive coal lease (WYW139975) under the provisions of 43 CFR 3425.1, as a lease by application (LBA). The area proposed for mining is a mixture of private, state, and federal surface and coal estates. If the applicant, Ark Land Company, is the successful bidder, they propose to mine surface and underground federal coal reserves along with their privately-owned coal to make an efficient and economical mining unit.

Under the LBA process, federal coal tracts are considered for leasing after nomination by industry. To process an LBA, the BLM must evaluate the quantity, quality, maximum economic recovery (MER), and fair market value (FMV) of the Federal coal and fulfill the requirements of the National Environmental Policy Act of 1969 (NEPA) by evaluating the environmental impacts of leasing and mining Federal coal. For the Elk Mountain/Saddleback Hills LBA tract, an environmental impact statement (EIS) was prepared to comply with NEPA. The Office of Surface Mining (OSM) is a cooperating agency on the EIS.

The LBA process is an open, public, competitive leasing process, by law and regulation. Bidding is not restricted to the applicant and competitive bids are encouraged. As envisioned by Ark Land Company, the proposed federal coal lease tract will be mined with its existing private coal holdings. Although BLM considers the tract a new mine start, Ark Land Company regards this mine a logical continuance of operations currently conducted by the company, through its subsidiary Arch of Wyoming (Arch), in the Hanna, Wyoming, area. The issuance of a federal coal lease will enable Ark Land Company to extend the life of mining operations in the area for at least 20 years and continue to supply coal of high heating value and low-sulfur to existing customers, as well as develop new contracts. Without supplemental reserves, by the year 2000 no additional economically-recoverable coal resources will be available to Ark Land Company in the Hanna area. For the reasons stated above, the draft and final EIS assumes that the applicant will be the successful bidder if a competitive sale is held.

DECISION

My decision, as BLM Wyoming State Director, is to hold a competitive lease sale and issue a lease for Federal coal tract WYW139975 to the successful qualified high bidder if the highest bid received meets or exceeds the fair market value of the tract as determined by BLM and if all other leasing requirements are met. The competitive lease sale will be held under the regulations of 43 Code of Federal Regulations (CFR) 3425, Leasing on Application. Under the selected alternative (Proposed Action) tract WYW139975 includes 5,235.15 acres of federal coal lands and based on preliminary estimates contains 149.7 million tons of in-place federal coal resources in Carbon County, Wyoming. Both surface and underground mining operations will be allowed. The decision is consistent with the Great Divide Resource Management Plan. This decision incorporates, by reference, the standard coal lease stipulations (see Appendix 1) addressing compliance with the basic requirements of the environmental statutes and the additional BLM stipulations.

It is also my decision that, based on the results of the EIS and comments received from the public, that all of the transportation options are available for further consideration during the Wyoming Department of Environmental Quality (WDEQ) permitting process.

National Environmental Policy Act

To process the LBA, BLM has evaluated the quantity, quality, maximum economic recovery, and fair market value of the federal coal and fulfilled the requirements of the National Environmental Policy Act of 1969 by completing an environmental impact statement (EIS) for the LBA. The EIS provided both the public and agency decisionmakers with a complete and objective evaluation of impacts likely to result from the Proposed Action and its reasonable alternatives.

ALTERNATIVES CONSIDERED INCLUDING THE PROPOSED ACTION

Alternative 1: No Action

Under the No Action Alternative, a federal coal lease would not be offered for competitive sale at this time, but the private coal would be mined. The No Action Alternative assumes that the federal surface-minable coal would not be mined because once the adjacent private coal is mined, the remaining federal surface-minable tract would be too small and scattered to be a viable independent mining unit. Adopting the No Action Alternative would result in the bypass of federal surface-minable coal; the economic and environmental consequences of mining the federal coal lands versus not mining them were compared in the EIS. The EIS analyzes a projected No Action Alternative disturbance area of 3,270 acres, including 30 acres of power lines located outside of the project area. Mine development would begin in 1999, surface mining is projected to begin in the year 2000, and mining would end in 2007. Final reclamation would be complete by 2012. Arch has proposed to haul coal from the Carbon Basin Coal Project Area (CBCPA) north on Highway 72 to the existing Seminoe No. 2 Mine loadout facility.

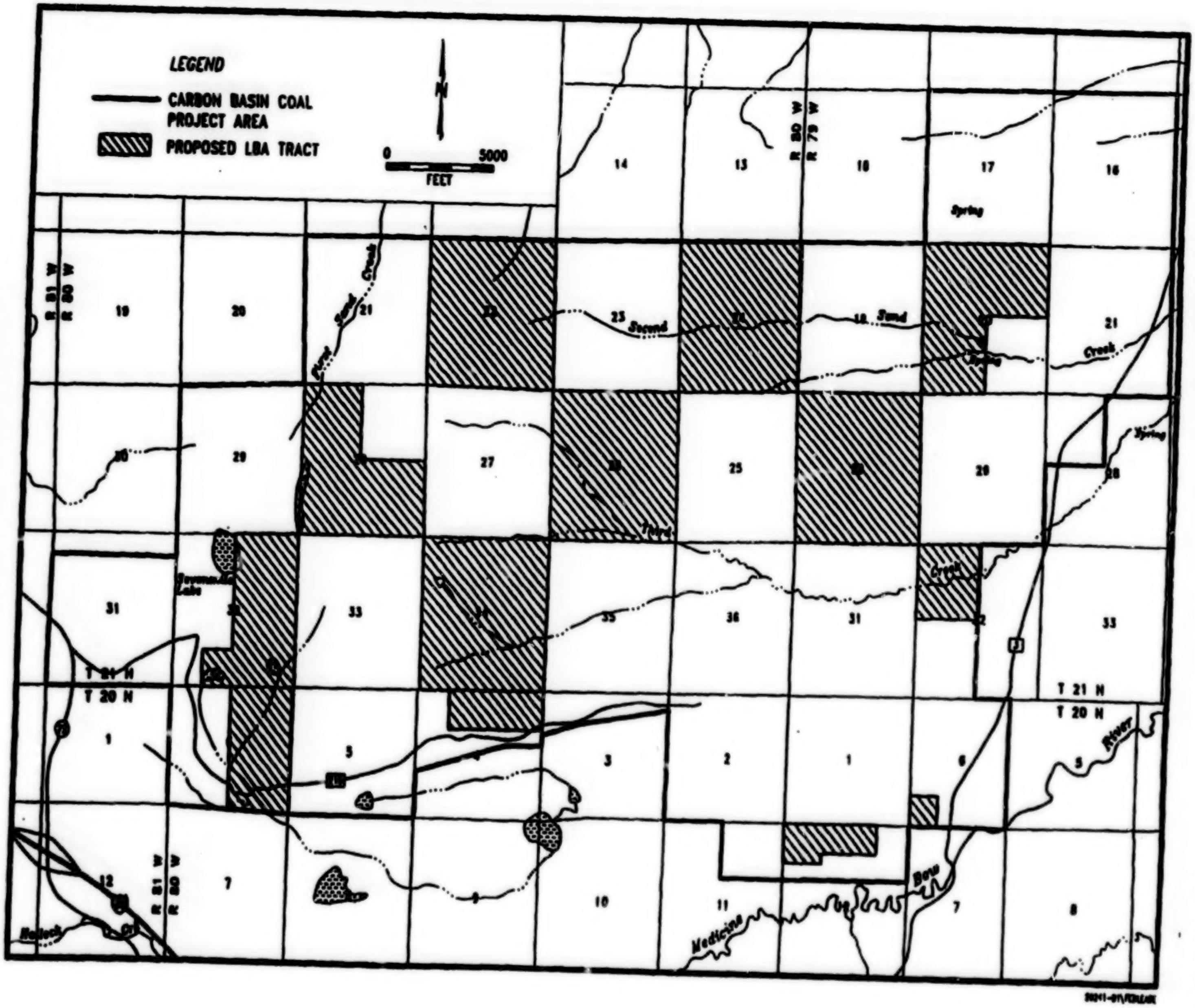
This alternative is considered the environmentally preferable alternative due to the lesser amount of surface disturbance, the shorter life of mine, and the lack of disturbance related to the transportation of coal to a new loadout facility.

Alternative 2: Proposed Action

Under the Proposed Action, BLM would hold a coal lease sale for the 5,235.15 acre tract (see map) subject to lease stipulations developed during coal planning and the EIS process (see section on Mitigation and Monitoring). Because the proposed project area is within the "checkerboard" landownership pattern, the use of federal land is needed for optimal mine development. A complete description of Ark Land Company's proposed mine development plan is presented in Chapter 2 of the DEIS. The EIS analyzed a projected Proposed Action disturbance area of up to 4,[illegible]96 acres from mining. The disturbance acreage figure also includes power line, railroad, and road corridor construction, the majority of which occurs outside of the CBCPA. Under the Proposed Action Alternative, the amount of surface landownership of disturbed lands includes approximately 4,320 acres of private, 170 acres of state, and 397 acres of BLM-administered public land. Surface mining, as described under this alternative, would result in an additional 837 acres of disturbance over the No Action Alternative.

Underground mine development would begin in pits created by surface mining activities. Portals would be constructed using continuous mining methods that would allow access to underground coal. Additional on-site facilities would include an underground longwall mining system. As part of the Proposed Action presented in the EIS, ten transportation options were analyzed (e.g., over-the-highway haulage, railroad,

BLANK
PAGE



Proposed Federal Coal Lease Tract

3

new haul road haulage, conveyor). These options were developed because, currently, no rail or processing facilities exist within the CBCPA. The options examine various modes of transporting coal from the CBCPA north to Seminoe II for processing until facilities are constructed in the project area. Other options discuss how to get the coal to the Union Pacific Railroad mainline once coal processing facilities are built in the CBCPA. Access to federal land for the construction, operation, and reclamation of any transportation option would be authorized by BLM through the issuance of rights-of-way (ROWs), an action that would also require further NEPA analysis.

Transportation Options

Ten transportation options were discussed in the analysis because no processing facilities nor connection to the Union Pacific (UP) mainline currently exist within the CBCPA. Arch's proposed transportation route (Transportation Option 1) is to haul coal via State Highway 72 to their existing coal processing facilities at Seminoe II Mine north of Hanna. Concurrent with underground development, Arch would construct a railroad line (12.4 miles) between the CBCPA to the UP line near the town of Medicine Bow and beginning in 2005 all coal except for that purchased by local customers would be shipped by rail.

The other transportation options include:

- Option 2- Same as Option 1 except the length of the railroad route is increased to 13.2 miles.
- Option 3 - Construct railroad and coal handling facilities on the CBCPA and transport all coal by rail beginning in the year 2000.
- Options 4 through 6 - Under these options new haul roads varying in length from 11.0 to 22.0 miles long would be constructed and coal would be hauled to the Seminoe II facility using 200-ton haul trucks. Under these options railroad and facility construction would occur as described for option 1 to be utilized in 2005 and the haul road would be reclaimed.
- Options 7 and 8 - Coal would be transported by covered conveyor varying in length from 11.0 to 14.0 miles long to Seminoe II; then transport coal by rail and reclaim conveyor routes in 2005.
- Option 9 - No railroad construction. Coal would be transported by 200-ton haul trucks on a new haul road 12.0 miles long to a new coal handling facility near the town of Medicine Bow.
- Option 10 - No railroad construction. Coal would be transported by covered conveyor to a new coal handling facility at the town of Medicine Bow. The conveyor route would be 11.0 miles long.

The transportation Options 3 through 10, as presented, would alleviate the safety hazards and maintenance concerns for Highway 72, but could result in impacts to other resources such as wildlife, visual, air emissions, etc.

A comment was received on the FEIS that addressed international concerns over global warming and CO_2 emissions. The environmentally preferable transportation options that would add the least amount of CO_2 to the atmosphere would be options 7, 8, and 10.

Alternatives Considered but Not Analyzed in Detail

Nine additional alternatives were considered by not analyzed in detail.

- Prohibit mining of the tract.

- Hold a competitive lease sale of other tract configurations to make the LBA tract attractive to other bidders.
- Hold a competitive lease sale for surface-minable coal only (exclude future leasing of underground reserves).
- Hold a competitive lease sale for underground reserves only.
- Alternative mining plans (resource protection alternatives).
- Alternative mining methods.
- Upgrade Highway 72 to four lanes.

MANAGEMENT CONSIDERATIONS/RATIONALE FOR DECISION

My decision to hold a lease sale for 5,235.15 acres of federal coal lands is based on the careful consideration of a number of factors including: 1) BLM statutory requirements; 2) potential impacts to the existing environment from this project; 3) additional issues and concerns raised by public comments in response to scoping the project and DEIS/FEIS comments; and 4) the implementation of measures to avoid and minimize environmental damage and/or enhancement of resource values.

Bureau of Land Management Statutory Requirements

The following federal laws were considered during the decision making process and it was determined that the lease sale is consistent with federal law and BLM policy.

Mineral Leasing Act of 1920

The decision to hold a sale to lease 5,235.15 acres of federal coal lands is consistent with the Mineral Leasing Act of 1920.

Under the authority of this act, the BLM has promulgated regulations addressing the competitive leasing of federal coal resources. The objective of these regulations is "...to establish the policies and procedures for considering development of coal deposits through a leasing system involving land use planning, environmental assessment or environmental impact statement processes; to promote the timely and orderly development of publicly owned coal resources...." The federal government maintains a policy to encourage private industry to develop and mine domestic mineral resources.

National Environmental Policy Act of 1969

NEPA (42 U.S.C. 4321 *et seq.*) requires that all federal actions be reviewed to determine their probable environmental impacts and to consider alternative measures. NEPA requires full disclosure of any federal action significantly affecting the quality of the human environment. The Carbon Basin Coal Project EIS provided both the public and agency decisionmakers with a complete and objective evaluation of impacts likely to result from the Proposed Action and its reasonable alternatives.

Mining and Minerals Policy Act of 1970

"It is the continuing policy of the federal government in the national interest to foster and encourage private enterprise in: 1) the development of economically sound and stable domestic mining, minerals...industries, and 2) the orderly and economic development of domestic mineral resources, reserves...to help assure satisfaction of industrial, security, and environmental needs." The decision to lease 5,235.15 acres of federal coal lands is consistent with this Act.

Federal Coal Leasing Amendments Act of 1976 (FCLAA)

Section 3 of this Act created a formal requirement for achieving the maximum economic recovery (MER) of federal coal. FCLAA requires that MER be considered at three stages: 1) at the time the lease is issued; 2) when the mine plan is approved; and 3) on approval of a Logical Mining Unit application. Prior to leasing, MER is determined after a preliminary examination of the federal tract proposed for coal leasing.

The decision to lease 5,235.15 acres of federal coal lands is consistent with the policy of MER. If the lands were not leased, it is likely that Ark Land Company will extract coal from their private and state holdings and bypass the federal surface minable reserves because the coal exists in several discontinuous parcels and, alone, are uneconomic to mine.

FCLAA directs the federal coal lessee to pay a minimum royalty payment of 12.5 percent of the value of coal extracted by surface mining and 8 percent royalty payment on coal mined using underground mining methods. In addition, this law discusses how these royalties will be distributed. The decision to lease 5,235.15 acres of federal coal lands would allow continuation of coal royalty payments which would not be realized if the federal lands were not leased.

Federal Land Policy and Management Act of 1976

FLPMA provides for the use and management of the federally-owned lands administered by the Secretary of the Interior through the BLM. It is the policy of the United States that, "... the public lands be managed in a manner that will protect the quality of public land resources while recognizing the Nation's need for domestic sources of minerals, food, timber, and fiber from the public lands." BLM must provide for management of the public lands and their resource values so that they are utilized in the combination that will best meet the present and future needs of the American people. The decision to offer 5,235.15 acres of federal lands to be leased for coal is consistent with the directives of FLPMA.

Summary of Environmental Impacts

The following elements of the human environment will be affected or potentially affected as a result of the implementation of the Proposed Action. The Proposed Action is defined as the leasing of 5,235.15 acres of federal coal lands and includes the subsequent mining of these lands with intervening private coal lands and transportation of coal to processing/loadout facilities.

Air Quality

There will be life-of-mine (LOM) increases in dust and pollution emissions within and adjacent to the CBCPA. Near-field modeling completed for this project indicates that air pollution will be highest in 2005; however, there will be no exceedances of the National Ambient Air Quality Standards (NAAQS) at or beyond the CBCPA boundary. This demonstration indicates that, during mining operations, pollutant concentrations in the areas of public access (including nearby residences) will be within the standards developed by the U.S. Environmental Protection Agency (EPA) and the WDEQ for the protection of public health. Furthermore, all concentration contributions are smaller than applicable Prevention of Significant Deterioration (PSD) increments. Model results also show that pollutant concentrations will be within the current Wyoming Ambient Air Quality Standards (WAAQS) and NAAQS at a distance of 656 feet from the haul route and therefore no adverse health effects to the residents of Hanna or Elmo from the trucking of coal to the Seminoe II loadout facility are expected.

Topography

Mining in the CBCPA will have a widespread, long-term, and permanent effect on topography. During mining, direct impacts to topography will include short- and long-term disruption of the landscape due to pit excavation and development of 175-foot to 200-foot highwalls and 100-foot high spoil piles. After reclamation, topography in surface-mined areas will be similar to pre-mine topography with the exception that the overall landscape will be slightly flatter and approximately 10 feet lower due to coal removal. Impacts due to underground mining include the potential subsidence of approximately 7,322 acres (including 257 acres that have been previously disturbed by surface mining), which will result in a gradual lowering of the landscape. Topographic impacts will likely alter some snow distribution patterns within and adjacent to mined areas.

Geology and Minerals

Under the Proposed Action, approximately 119.12 million tons of surface- and underground- recoverable coal will be removed for eventual combustion to generate heat and electricity. This will be a significant impact because it is a nonrenewable resource. An estimated 112.48 million tons of surface- and underground-minable coal will be bypassed for economic (limit of economic surface mining) or technical (left as support pillars in underground mining) reasons; this will also constitute a significant impact.

Federal oil, gas, and other mineral exploration and development will be permitted in the CBCPA for the LOM as long as it does not interfere with coal mine development and operations.

Paleontological Resources

Important paleontological resources are not expected to be directly or indirectly impacted by the project due to the low potential for fossils of significance to occur within the CBCPA. While the geologic formations existing in the CBCPA are known to contain important fossils elsewhere in the Carbon and Hanna Basins, field surveys revealed that there was little potential to encounter important fossils during mine development and operation.

Soils

Potential impacts to soils from mining include the disruption of biologic activity; loss of organic matter; increased mortality to seeds, bulbs, and live plants; and the loss of soil via wind erosion on up to 4,896 acres of disturbance. There will be slight changes in soil moisture and productivity in the disturbance area. A detailed soil handling plan will be required as part of the mine permit application that will mitigate the potential impacts to soils. This permit will include a description of specific treatments needed to restore soil productivity.

Surface Water

Potential exists for a decrease in water quality in surface waters due to runoff from disturbed areas, reduction in stream-flows due to capture of water in sedimentation ponds, and alteration of surface water runoff patterns due to planned drainage diversions. However, no significant impacts to surface waters from mining are anticipated during or after mining and reclamation due to regulatory requirements for water release and rehabilitation of the drainage systems.

Groundwater

Impacts to groundwater due to the proposed action include: 1) direct groundwater consumption at a rate of up to 126,000 gallons per day; 2) indirect groundwater loss due to evaporation; 3) temporary loss and permanent alteration of coal and overburden aquifers due to mining and subsidence; 4) direct impacts to groundwater users due to groundwater consumption and drawdown in areas adjacent to the proposed mine; 5) possible very long-term (thousands of years) reduction in groundwater quality in the replaced overburden aquifer or overburden that is broken during subsidence; and 6) accidental temporary pollution caused by unwanted discharges to groundwater.

Pre-mine groundwater quality is poor, suitable only for livestock and wildlife watering and industrial uses. Because no groundwater flows out of the Carbon Basin, it is likely that post-mining groundwater quality would remain poor, probably permanently.

Noise and Odor

Surface mining and, to a lesser extent, underground mining activities will increase noise levels on-site and along transportation corridors. Due to the distance from the nearest residence, no mine or blasting noise will likely be heard; however, truck noise may be noticed at the Conoco Station and by residents of Elmo. Some adjacent residents may view the increased noise as a significant impact.

There will also be an increase in odors for the LOM over current levels resulting from mine equipment exhaust and dust created by mining activities.

Vegetation

Up to 4,896 acres of vegetation will be removed prior to surface mining and construction of mining-related facilities which will result in long-term reduction in diversity and number of shrubs. This reduction will occur over the LOM. During reclamation, WDEQ will require the re-establishment of shrubs and vegetative diversity to meet the requirements for post-mine uses.

Both surface and underground mining (on approximately 7,322 acres) will cause changes in snow distribution patterns that will result in the potential for significant plant community changes on a local scale. No change in the regional mosaic is expected.
The possibility exists for weed infestations to occur on areas disturbed by mine development. Early detection and control will minimize establishment and spread of noxious weeds.

During the LOM, there could be a short-term loss of wetlands and riparian areas of about 2.0 acres. The requirement to survey for and replace all wetlands, either jurisdictional or non-jurisdictional will limit the impact to these areas.

Wildlife and Fisheries

Surface mining in the CBCPA will result in a loss of up to 4,107 acres of pronghorn crucial winter range (0.7 percent of the total crucial winter range within the herd unit) and 1,700 acres of mule deer crucial winter range (one percent of the total crucial winter range within the herd unit). Mining has the potential to displace or stress the population of these animals within the CBCPA. The analysis shows that the Proposed Action will result in locally-significant impacts to crucial winter range and overlapping crucial winter range for pronghorn and mule deer. With mitigation, mine development and operation will not have a significant impact at the regional population level and management objectives will be met for all big game resources.

The Proposed Action will cause the loss of up to 139 acres of breeding habitat and 3,602 acres of sage grouse nesting/wintering habitat. Loss of sage grouse habitat is significant in the areas where habitat is removed but the loss is not significant on the regional sage grouse population. Sage grouse will also be impacted by bird/vehicle collisions and impacts with transmission lines. Special stipulation No. 9 (see Mitigation Section below) will be placed on the federal coal lease WYW139975 to mitigate the effects that mining and related activities will have on sage grouse.

Fourteen raptor nests may be taken or relocated as a result of mining activity under the Proposed Action. Federal and state permits must be obtained before a raptor nest can be taken, a plan to mitigate the take must be developed, and follow-up monitoring must be conducted. Because these activities will be conducted only in cooperation with, and after obtaining permits from, Wyoming Game and Fish Department (WGFD) and the United States Fish and Wildlife Service (USFWS), impacts to raptor nests will be mitigated.

Threatened and Endangered and Candidate Species

A biological assessment (BA) was prepared to describe the potential effects of mining within the CBCPA on federally threatened, endangered, and candidate (TE&C) plant and animal species. The possible effects of mining on five animal species were discussed in the document: black-footed ferret, swift fox, bald eagle, mountain plover, and peregrine falcon. Within the CBCPA, these species are considered not likely to be present to uncommon. In general, mining will have the potential to remove habitat for all species considered. The USFWS has reviewed the Biological Assessment and submitted a Biological Opinion (BO) to BLM on June 3, 1999. The lessee must comply with all required terms and conditions listed by the USFWS in the BO. Also, the USFWS recommends in the BO that the buffer zones for the bald eagle and peregrine falcon nests be increased from a 0.75-mile buffer to a 1-mile buffer. Because the recommendation differs from the analysis presented in the draft and final Carbon Basin EIS, the changes have been added as special stipulations on the lease WYW139975 (see Mitigation and Monitoring section below).

No TE&C plant species are known to occur within the CBCPA, although potential habitat for Ute's ladies tresses has been noted adjacent to the project area in the Medicine Bow River floodplain. Stipulations will be attached to federal coal lease WYW139975 (see Mitigation and Monitoring section below) which require TE&C plant surveys in areas of potential habitat prior to mining. Because surveys for TE&C species will be completed prior to disturbance, potential impacts to these plant species would likely be negligible.

Additional discussion of federally threatened and endangered species within the Platte River System are discussed below under Item 3, Public Involvement - Impacts to the Platte River System Including the Medicine Bow River.

Cultural and Historic Resources

Of the total 160 cultural resource sites recorded within the CBCPA, 114 sites are prehistoric, 37 are historic, and 9 contain both prehistoric and historic resources. Nine sites have been recommended as eligible for nomination to the National Register of Historic Places (NRHP). All eligible sites will be either avoided or otherwise mitigated via an agency-approved recovery program. Agency determination of eligibility will be required prior to implementing a testing program to determine NRHP eligibility of sites important to Native Americans. With federal coal lease stipulations and WDEQ permit mitigation, mine development under the Proposed Action will not cause significant loss of cultural resources.

Socioeconomics

The federal coal lease and associated private mine development will allow continued employment for workers at Arch of Wyoming's Seminoe II and Medicine Bow Mines. Economic reserves from these mines will be exhausted by the year 2000. It is anticipated that the Proposed Action will maintain or increase employment for 20 or more years after mine development begins and is considered a significant and beneficial impact to local employment. The other traditional land uses within and adjacent to the CBCPA will continue. The slight decline in agricultural productivity and corresponding tax base will be more than offset by the development of the private and federal reserves.

Agricultural property values at the Johnson Ranch and the N/S Livestock Ranch, located adjacent to the CBCPA, may decrease for the life of mine. Potential impacts to the Johnson Ranch property have been mitigated through agreements between the ranch and Ark Land Company. The potential impact to property value on the N/S Livestock ranch is considered a temporary significant impact. The potential reduction in property value is the result of visual intrusions caused by the dragline and spoil piles. This impact will last only during the approximate 11-year life of surface mining and the subsequent reclamation of surface-mining disturbance.

Mining activities could result in increased traffic demand on local highways and other roads, depending on the transportation option selected. Traffic (maximum projected to be 914 vehicles per day) will exceed Highway 72 design standards. If it is determined that the number of vehicles required will exceed current Highway 72 design limits, negotiations with the Wyoming Department of Transportation (WDOT) will occur to discuss mitigation (e.g., addition of passing lanes, resurface or widen road, restrict load size) that will reduce impacts to the highway.

Land Use

Traditional uses within and adjacent to the CBCPA are primarily livestock grazing, wildlife habitat; outdoor recreational activities such as hunting, hiking, camping, and off-road vehicle use; and oil and gas exploration, development, and transportation. Coal mining is also a previous land use as exhibited by several historic abandoned mines within the CBCPA.

Under the Proposed Action, a LOM average loss of up to 181 Animal Unit Months (AUMs) will occur from all land ownerships within the CBCPA. This will occur as land is disturbed for mining and related purposes and while it is being reclaimed. Most of this loss will occur on the lands owned by Ark Land Company. Grazing use of the federal land will continue to be available to the extent that mining and related disturbance does not preclude livestock grazing.

The FEIS stated that the federal grazing permit would not be made available to the N/S Livestock Ranch without an agreement for use of Ark Land Company's intermingled private property. This would have been a significant impact to N/S Livestock. However, it has been determined that continued use of the federal land for grazing purposes was not dependant on control of the intervening private lands, but rather on the nature and extent of the actual progression of mining activity. This will allow the present grazing permit to continue, as authorized under the BLM's grazing regulations, with only minor adjustments to the ranching operation required during the LOM. These adjustments are not likely to exceed 15 AUMs during the LOM. This federal authorization is only applicable to the federal surface and federal AUMs and no guarantee of access across private land is implied.

Implementing the Proposed Action has the potential to hinder, but not necessarily curtail the exploration and/or development of oil and gas resources during the LOM.

Visual Resources

The CBCPA and most transportation corridors are within a Visual Resource Management (VRM) Class III area. Topography will screen the mine for all but 0.5 miles along Interstate 80 and for 1.0 miles along Highway 72. For off-highway viewers, such as ranchers and recreationists, on County Road 3 the mine will dominate the landscape and will significantly impact visual quality. For residents of N/S Livestock Company and Johnson Ranches, the temporary visual intrusion will be the result of the dragline and spoil piles seen during the approximate eleven year life of surface coal mining. Under the No Action Alternative, private mining would occur within 2,500 feet of the residence. Since the closest mining planned to occur on federal land is over two miles from the nearest residence, implementing the Proposed Action will not increase visual impacts above those that would occur under the No Action Alternative. Contemporaneous reclamation will relieve some of the temporary visual intrusion.

Hazardous Materials

Potential sources of contamination include the spilling, leaking, and/or dumping of hazardous substances and/or petroleum products associated with mineral, coal, oil and gas exploration and development, and agricultural and livestock activities.

Because project operations will be required to comply with all relevant federal and state laws regarding hazardous materials and with directives identified in the Hazardous Materials Management Plan and the Spill Prevention, Control, and Countermeasures Plan for this project, no significant impacts are anticipated.

Public Involvement

In addition to the resources discussed above, additional concerns were raised during scoping, the DEIS/FEIS comment periods, and the public hearing as follows.

Present a No Action Alternative That Includes No Mining

The analysis of the No Action Alternative as presented in the EIS is one of "no federal leasing" rather than "no mining" for several reasons. Seventy-nine percent of the surface-minable coal within the CBCPA is privately owned. The coal reserves within the CBCPA lie in a manner that the private reserves could be economically mined without obtaining a federal coal lease. Conversely, the federal coal lies in several scattered parcels and could not be economically extracted without including the adjacent private coal. The owner of the private coal in the CBCPA currently operates two surface mines in the Hanna Basin, both of which will soon be depleted of economically-recoverable coal reserves. Because the existing operations are in the vicinity of the proposed mining operation, it provides the private coal owner with processing facilities, equipment, and manpower available to extract, process, and ship their private coal resources from the CBCPA.

For the reasons listed above, to ask the BLM Authorized Officer to include in the EIS a no mining alternative, would require that a no action - no mining alternative include a clause stating that if the no action alternative were chosen, BLM's decision could not prevent the mining of state and private holdings. The No Action - No Mining alternative was requested as a method of assuring that the public and the decisionmaker had an adequate baseline from which to compare the impacts from different alternatives.

For the purposes of baseline analysis, Table 2.18a presented in the FEIS provides baseline levels of current activity as described in Chapter 3.0 of the DEIS. These baseline values provide the BLM Authorized Officer and the public with sufficient information to make an informed decision based on the effects that mining will have as described under the Proposed Action.

Impacts to Adjacent Landowners

Increase in traffic on County Road 3/402, degradation of air quality adjacent to the CBCPA, visual impacts, noise and odor, vandalism, loss of land value, and reduction or loss of grazing capabilities were concerns raised by an adjacent landowner whose residence is located within 2,500 feet of the nearest federal parcel proposed for leasing. Coal in this parcel is lower in quality than other coal in the property and is not currently proposed for mining. The closest federal parcel proposed for mining is located approximately two miles from this residence.

Although there may be slight increases in traffic on County Road 3/402, the county road has a bridge that is inadequate to support large haul trucks and is too narrow to allow these trucks to pass safely. Hauling coal for local customers requires 22 trips per day, and upgrading the bridge and road for this amount of traffic is not economically feasible. Therefore, Arch will not use this road as a haul route. Vendors, employees living in Laramie, and visitors may use the road to access the mine, which would result in a traffic increase past the ranch; however, traffic to and from the mine would be required to comply with all federal and state transportation laws, so the increase will not result in a significant impact.

As stated in the FEIS, although there will likely be an increase in particulate matter and emissions due to mining operations in the areas adjacent to the CBCPA, the air quality will remain well within the public health standards. The operator will be required to continue to demonstrate compliance with the standards set forth by the EPA, and administered by the WDEQ. No significant impacts are expected to occur.

The increase in noise and odor from mining activities may be heard or detected by adjacent landowners, recreationists, and wildlife but is not expected to be heard or detected at the closest occupied private residence, which is approximately one-half mile from the nearest proposed mining. The nearest federal coal which will be mined is over two miles from the nearest residence. A slight increase in noise and odor levels from traffic on County Road 3/402 may be noted by this resident whose home is located approximately 600 feet from this road.

The potential exists for a reduction in property values adjacent to mining operations as a result of visual intrusions caused by the dragline and spoil piles. This is considered a temporary significant impact. However, the nearest federal coal mining will occur over two miles from the closest residence and any resultant loss in property value attributed to the federal action will be far less than the impact from the nearest private coal mining. Contemporaneous reclamation of all mined lands will relieve some of the temporary visual intrusion.

Impacts to the Platte River System Including the Medicine Bow River

Measures are currently in place that help assure protection of the Platte River System, including the Medicine Bow River, from impacts due to surface mining activity. This will be accomplished through the WDEQ mine permitting process. Prior to construction, WDEQ will approve all designs for diversion ditches, culvert crossing, and sediment or evaporation ponds to minimize the effects of coal mining to local drainage systems. Arch will be required to obtain a NPDES permit under the Clean Water Act of 1977, which regulates the discharge of pollutants into navigable waters.

It is estimated that the annual depletion rate resulting from mining activities within the CBCPA will be 14 acre-feet. In general, the loss of water into the drainage system results from the requirement to retain mining-related surface run-off in ponds. These losses must be mitigated in accordance with the July 1997 Final Biological Opinion on Minor Water Depletions to the North Platte River System and the Cooperative Agreement between the States of Wyoming, Nebraska, and Colorado and the Secretary of the Interior. Payment is required to be made to the USFWS for each acre-foot of depletion or the proponent must replace the lost water. The USFWS has determined the amount of payment required to offset project-related impacts to Platte River fish and wildlife resources (refer to Appendix 4). The project proponent would be required to comply with all USFWS recommendations including depositing the amount recommended in the BO into the designated National Fish and Wildlife Foundation account prior to initiating mining operations. In addition, WDEQ performance standards state that no land within 100 feet of a perennial or intermittent stream will be disturbed by mining operations without authorization. Thus, mining will not occur within 100 feet of Second and Third Sand Creeks unless specifically approved by the WDEQ.

Groundwater loss to the Platte River/Medicine Bow River from implementing the Proposed Action is expected to be negligible for two reasons: 1) the formations in the Carbon Basin are separated from regional aquifers by a layer of semi-pervious Lewis Shale which essentially eliminates any hydraulic connection between the Carbon Basin aquifers and the alluvium along the Medicine Bow River and surface waters in the North Platte River System; and 2) the Carbon Basin is a closed basin in which groundwater flows toward the center of the basin.

Letters Received on the EIS

Five letters were received and are contained in their entirety in this document. BLM responses are provided following the letters.

Office of Federal Land Policy

122 West 25th Street ● Herschler Bldg., 3 West ● Cheyenne, WY 82002-0600 ● 307-777-7331 ● 307-777-5400 fax

RECEIVED
FEB 12 1999
BUREAU OF LAND MANAGEMENT
RAWLINS FIELD OFFICE

February 10, 1999

Kurt Kotter
Rawlins Field Office
Bureau of Land Management
1300 N. Third St.
Rawlins, WY 82301

RE: Carbon Basin Coal Project FEIS

Dear Mr. Kotter:

This Office has reviewed the referenced document on behalf of the State of Wyoming. We also provided the FEIS to all affected State agencies for their review, in accordance with State Clearinghouse procedures.

The State Historic Preservation Office (SHPO) has not, to date, received the Section 106 cultural survey report of eligibility and effect for this project. SHPO cannot provide specific comments to the Bureau of Land Management (BLM), Wyoming Department of Environmental Quality (WyDEQ), or Office of Surface Mining until they receive and can review the documentation required in 36 CFR Part 800. We remind BLM that no surface disturbance can occur until SHPO has received and been provided an opportunity to comment on the findings in that report. Please refer to SHPO project control #1196RLC060 on any future correspondence with them which deals with this project. If you have questions, please contact Richard Currit at 307-777-5497 or Judy Wolf at 307-777-6311.

The State supports the proposed alternative. However, we continue to have concerns about long-term wildlife habitat loss and modification, about displacement of wildlife into areas of lower habitat effectiveness or onto private lands intermingled in and adjacent to the project area, and about wildlife and its habitat not having been designated as a post-mine land use. If you have questions about specific concerns, please refer back to Wyoming Game & Fish Department's technical comments submitted on the DEIS.

We're not able to respond to BLM's conclusion that mitigation and reclamation efforts will be adequate to restore habitat function, because the specific technical data and mitigation/reclamation actions which support that conclusion are not supplied in the FEIS. We would appreciate receiving that supportive information prior to issuance of the Record of Decision.

Kurt Kotter
Carbon Basin Coal Project EIS
February 10, 1999
Page 2

It is implied in the DEIS and FEIS that forfeiting a bond, should mitigation efforts fail, constitutes reduction of impacts to nonsignificant levels. Bond forfeiture does not make up for lack of adequate mitigation of habitat function. Adequate functional mitigation should be assured prior to mining. While we would like to have seen mitigation stipulations proposed and assessed in the FEIS, the Wyoming Game & Fish Department will work with BLM and WyDEQ through the permitting process to address these concerns and recommend avoidance or mitigation permit stipulations.

Considering the possibility that the US Fish and Wildlife Service may soon receive a petition to list sage grouse as threatened or endangered, sage grouse habitat protection should be a high priority for BLM.

This analysis, as many do, points up the dearth of available information about impacts on wildlife and habitat function from a variety of development activities. We would suggest that this presents an opportunity for WGFD and BLM to work together, perhaps in partnership with other State and federal agencies, to secure traditional and non-traditional funding and personnel to conduct much-needed research.

We appreciate BLM's inclusion of a no mining/current condition baseline against which the impacts of No (federal) Action and the Proposed Action are contrasted.

Thank you for this opportunity to comment.

Sincerely,

Conrad A. Lass

Conrad A. Lass
Director

CL:ck

RESPONSE TO THE LETTER FROM THE OFFICE OF FEDERAL LAND POLICY

As the FEIS states, OSM/WDEQ will coordinate with the State Historic Preservation Office during the permitting stage. The BLM commented on the Section 106 cultural survey report of eligibility and effect specifically for federal lands located in the project area and submitted them to your office in June 1998. No disturbance due to mining activities will be allowed in the CBCPA prior to mine permit approval.

If all, or a significant portion, of a herd unit's crucial winter range were mined at one time, significant long-term impacts to antelope and mule deer could occur. However, because less than one percent of the available crucial winter range utilized by these species will be disturbed by mining activities, sufficient forage will be available to maintain WGFD target populations for wintering antelope and mule deer. Text in Section 4.2.2 of the FEIS states that wildlife habitat would be one of the post-mining land uses.

Mitigation will be developed during the permitting process. BLM and all appropriate state agencies will be involved in determining applicable mitigation in areas designated as crucial habitat for all phases of mining to ensure protection of sensitive environments and completion of adequate reclamation. The public will be able to review and comment on the proposed mitigation plans, as well as other portions of the permit application, during the permitting process.

Data regarding Arch's demonstrated ability to re-establish shrubs on reclaimed areas were based on a study prepared by Intermountain Resources in 1996. Data from this study was summarized when we responded to comment J11 of the FEIS. Pronghorn and mule deer use in reclaimed areas are documented in Wildlife Monitoring Reports submitted annually to WDEQ. These documents contain data too voluminous to be included in the EIS, but are public data and can be inspected at the WDEQ offices.

The EIS states that impacts to vegetation from surface mining activity are considered insignificant in part because a bond is held to ensure that reclamation is completed as described in the permit. According to SMCRA, Sec. 509(a), "The amount of bond shall be sufficient to assure the completion of the reclamation plan if the work had to be performed by the regulatory authority in the event of forfeiture...." The performance bond is dynamic and recalculated every year and included as a confidential section of the annual report submitted by the permittee to WDEQ. Therefore, if reclamation is assured to be completed, whether by the permittee or by the regulatory authority, the success of re-vegetation, and subsequent bond release, is determined by adherence to WDEQ requirements found in Chapter 5 of the DEIS, Section 5.1.2.4. This section includes the requirement to consult with WGFD to obtain recommendations on plant composition and arrangement in those areas designated as crucial habitat to ensure appropriate reclamation for wildlife use.

The requirements of SMCRA, administered by OSM, and state laws, regulated by WDEQ, ensure that impacts from surface mining are mitigated and minimized. These requirements as well as all other applicable federal and state laws and regulations relevant to coal mining operations are considered part of the No Action and Proposed Action Alternatives. For the purposes of determining if the federal coal within the CBCPA should be leased, the BLM must determine if the potential impacts discussed in the EIS can be mitigated by the implementation of these laws and requirements or if additional mitigation would be required. Additional mitigation requirements not addressed in these laws and/or specific performance requirements set forth from documents such as planning decisions or the Biological Assessment are added as stipulations to the proposed coal lease. A stipulation for the protection of sage grouse has been added to coal lease WYW139975.

A cooperatively planned and funded study of impacts from coal mining development on antelope and/or other wildlife and habitat function could provide useful information for future management decisions. This EIS is not the appropriate avenue to commit to such a study. We would suggest that the BLM and WGFD could jointly address this issue through an agenda item at our next annual coordination meeting.

BLANK
PAGE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

FEB 17 1999

RECEIVED
FEB 22 1999
BUREAU OF LAND MANAGEMENT
RAWLINS FIELD OFFICE

Ref: 8EPR-EP

Kurt Kotter
Rawlins Field Office
Bureau of Land Management
1300 North Third Street
Rawlins, WY 82301

Re: Carbon Basin Coal Project, Final
Environmental Impact Statement

Dear Mr. Kotter:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the Region VIII office of the Environmental Protection Agency (EPA) has reviewed the above referenced Final Environmental Impact Statement (FEIS).

We would like to thank the Bureau of Land Management (BLM) for their response to the EPA's comments and concerns expressed in our letter related to the DEIS. In particular, the additional information as now presented in Chapter 2, does provide the public, reviewers and decision maker a clearer understanding of the baseline conditions for the Carbon Basin Project Area (CBPA) that would be associated with a No Mining Alternative. The information brought forward from Chapter 3, Affected Environment, and now found in Table 2.18a is especially helpful.

The following comments were discussed during our conference call of January 29, 1999. We offer these comments and corrections for your consideration in preparation of the project Record of Decision (ROD).

1. Page ix, left column, second paragraph, first sentence. "The EIS analyzes a No Action Alternative project disturbance area of 3,270 acres ... ."

   As stated in the draft EIS comments, EPA prefers for the No Action Alternative to be a no mining scenario which would form a baseline to which other alternatives could be compared.

For future coal mining EIS's, the no action alternative could be defined as a no mining alternative with a clause stating that if the no action alternative were chosen, BLM's decision could not prevent the mining of state and private holdings.

2. BLM's Response to Comment M3, pg. 8-28. Table 2.18(a) does not indicate in the air quality section that a WDEQ defined significance level for 24-hour PM10 levels were being exceeded for two occupied residences and for wildlife.

   If this level of significance were predicted to be exceeded, then this information should be included in the comparison of alternatives table 2.18(a). Also, for future EIS's, it is not advisable to simply delete the word "significance" when going from the draft to the final EIS.

   As discussed in our conference call on 1/29/99, this level of significance does not apply to the Carbon Basin area since it is in an attainment area for National Ambient Air Quality Standards. The ROD should make this correction.

3. Table 2.18a, page 2-4, Climate and Air Quality. The columns for proposed action impacts and cumulative project impacts appears to be reversed. The cumulative impacts should always be greater than the proposed action impacts since baseline has to be added to the proposed action to get the cumulative impacts.

   In addition, the 225 $\mu g/m^3$ NOx concentration should be 2.25 ug/m3.

4. Table 2.18a, pg. 2-13, Land Use. The degradation of Highway 72 is not the only significant issue related to transportation. Under the trucking option, the truck traffic will likely exceed the state's design standards for the highway. This is a significant impact and is something the public and decision-maker should know, and it should be presented in Table 2.18a. Also, the decision maker should know how much time and money will be required to bring the highway up to a design standard to meet the expected traffic levels and where the money will come from.

5. Response to Comment M15, page 8-29. "No specific mitigation is proposed at this time but it would be instituted at the permitting stage." This type of statement is not applicable to an EIS since it is the responsibility of the lead Federal agency to suggest mitigation even if it is outside the jurisdiction of the lead agency. See CEQ's 40 Most Asked Questions # 19 (a) and (b).

6. Table 8.2, page 8-30. The units at the top (lbs CO_2/yr) should be changed to (tons CO_2/yr).

   The total CO_2 emissions listed for Transportation Option 1-2 (217,007 tons/yr) is too low. The correct total should be listed.

16

7. Table 8.2, page 8-30. As indicated by the CO_2 emissions for transportation options 1-2 vs. option 3, the increased CO_2 emissions for options 1-2 is 552,085 tons between 1999 and 2005.

   EPA is pleased that this information has been included in the Final EIS. However, due to international concerns over global warming in which CO_2 emissions play a major role, the additional one half million tons of CO_2 emissions related to transportation options 1-2 should be clearly stated in Table 2.18a under "Climate and Air Quality". With this information, the decision-maker can clearly understand how his or her decision will affect the increased release of greenhouse gases. With the importance of transportation options for the Carbon Basin Coal Project, option 3 should have been addressed in the EIS as an "Environmentally Preferred Alternative".

8. The EPA understands the BLM will compare water quality data from existing nearby similar coal mines to determine if there are elevated levels of selenium, nitrate, amonia and salts which may impact water quality from mining in the CBPA.

We appreciate the opportunity to review and comment on the FEIS. Should you have any questions related to our comments please contact the following members of my staff: Robert Edgar at (303) 312-6669 or Mike Hammer at (303) 312-6563.

Sincerely,

Cynthia G. Cody, Chief
NEPA Unit
Ecosystem Protection Program

cc: Elaine Suriano, EPA HQ-OFA
Robert Edgar, 8EPR-EP
Dana Allen, 8EPR-EP

Response to the Environmental Protection Agency

See discussion of No Action Alternative under Management Consideration/Rationale for Decision, Item 3. Public Involvement above.

The EPA has identified that the Carbon Basin is considered an attainment area for National Ambient Air Quality Standards and not subject to the level of significance identified in the FEIS. However, Wyoming guidelines require facilities completing a NAAQS modeling analysis to identify a potential area of significant impact and to include all emissions sources located within that area in subsequent modeling. Worst-case PM10 model results from all mine sources were plotted to show the extent of impact for both the 24-hour and annual PM10 emissions and are shown in the FEIS as Figures 4.5 and 4.6. Since WDEQ will require the identification of these areas, we feel that we were not in error to disclose these potential impacts. Because there was some confusion that the modeling indicated significant impacts to public health standards, the term significance was removed from the description of these figures. This was our error; however, please note that it is anticipated that air quality to local receptors (two residences and wildlife) will remain within the standards for public health and safety.

These corrections have been made on the errata sheet, Appendix 3, to this ROD.

It is to the advantage of Arch to keep Highway 72 in a condition that will allow them to truck coal to the Seminoe II loadout in an efficient and safe manner. If it is determined that the number of vehicles required will exceed the design standard for Highway 72, then Arch will negotiate with the Wyoming Department of Transportation to determine what types of actions (e.g., limit load size, add passing lanes, resurface or widen the road, etc.) will be taken to upgrade the road to meet expected volume and traffic type. It is not known how much time and money will be required to upgrade the road and who will pay, but it is known that these agreements would have to be in-place prior to exceeding present standards. Since mitigation will be in-place prior to exceeding current Highway 72 design limits, this would not be a significant impact.

As stated in Comment Response M15 presented in the FEIS, under the requirements set forth under Section 21 of the Wyoming Air Quality Standards and Regulations the operator of this coal mine will be required to utilize the Best Available Control Technology (BACT). For large mining operations specific measures normally required to reduce or eliminate emissions include, but are not limited to, such things as paving access roads, treating permanent and temporary haul roads with suitable dust suppressants, use of silos, barns, and similar enclosed containers for the storage of large volumes of material awaiting loadout or shipment, and the treatment of active work areas and temporary storage piles. Because the lessee will be required to obtain a Section 21 permit prior to mine disturbance, the BLM feels that suggesting additional mitigation measures above those required is unnecessary.

Thank you for noting mistakes to Tables 8.1 and 8.2 of the FEIS. Corrections have been made and can be reviewed in the ERRATA section, Appendix 3.

Please refer to the discussion of transportation options in the Alternatives Section. After reviewing Table 8.2, it was determined that the environmentally-preferable options in respect to adding the least amount of CO_2 to the atmosphere would be those where the coal would be transported to loadout facilities using a conveyor system (options 7, 8, and 10). However, it should be noted that other transportation options may have less of an impact on other resources and would, therefore, be environmentally-preferable for those resources.

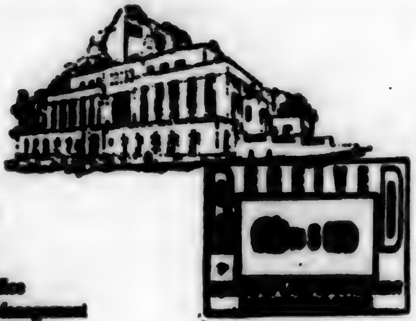
Water in Carbon Basin has been determined to be of poor quality and suitable only for livestock and wildlife watering. A review of baseline and backfill wells reported in Arch of Wyoming's 1998 annual report for the Medicine Bow Mine indicates slight elevation of nitrate levels and fluctuations are noted in other water constituents from the baseline in some wells; however, it appears to be only temporary and the wells seem to recover to pre-mine levels within a few years. No amounts of selenium are reported in any of these wells.

There are volumes of water quality information available at WDEQ from all mines in the Hanna Basin since they are required to report well data on an annual basis. It would not be appropriate to include this data with this EIS, however it is public data and can be obtained from the WDEQ. Mining and proper reclamation should result in no impact to wildlife, industry, nor to any other post-mine water users.

CARBON COUNTY PLANNING COMMISSION

Commissioners
Steve Adams
Sonja Cellanese
William Ellis
Henry Hewitt
William Spear

Planning Director
Jonathan Schoel



Location
215 W. Buffalo Street
Carbon Building #304
Rawlins, Wyoming

Mailing Address
P.O. Box 487
Rawlins, Wyoming 82301
Tel (307) 328-2651
Fax (307) 328-2661

February 5, 1999

Mr. Kurt Kotter
Rawlins Field Office
Bureau of Land Management
1300 North Third Street
Rawlins, WY 82301

RE: Carbon Basin Coal Project – Final Environmental Impact Statement

Dear Mr. Kotter:

Carbon County strongly supports approval of the Carbon Basin Coal Project. Implementation of the mining project would provide needed jobs for the towns of Hanna and Elk Mountain, towns that historically depended upon coal mining for their livelihoods. With the closing of the Seminoe II mines the Carbon Basin Project is more important than ever to maintaining the vitality of these two communities and the eastern portion of Carbon County.

As stated in the Final EIS, the Carbon County Land Use Plan recommends the continued extraction of coal deposits within the county. The LUP also stresses the protection of agricultural resources and existing agricultural operations. According to the residents of Carbon County both agriculture and commercial mining are important to our economy and way of life. However, in at least four separate places within the FEIS it is stated the CBCP will have significant negative impacts to adjacent ranching operations:

1. ". . . loss of visual quality to nearby residents and recreational/ranching users; and decreased property values for nearby residents. (abstract)
2. "Property values at the N/S Livestock Company and Johnson Ranches would decrease for the LOM, which would constitute a significant impact." (p. xix)
3. "Reduction of AUMs for livestock." (p. 2-13)
4. "Reduced property values at the N/S Livestock Company and Johnson Ranches." (p. 2-13)

These impacts will be borne disproportionately by the N/S Livestock Company and the Johnson Ranch. However, no measures are suggested to mitigate these impacts within the FEIS. The Carbon County Planning Commission believes some level of mitigation for the significant impacts resulting from this project should be incorporated into the final permit.

The loss of available grazing land as a result of the Carbon Basin Project may prove terminating for the N/S Livestock Company. Though the residents of Carbon County support commercial mining, I do not believe they support it at the demise of another commercial operation. The FEIS should include mitigation for the affected ranches' loss of grazing land. In your response to comment K5 you state it is the responsibility of N/S Livestock Company to reach an agreement with Ark for grazing access. We suggest a condition of the permit is that Ark and N/S Livestock come to terms concerning access to the federal grazing permit.

Ark Land Company's operations will have a significant negative impact upon these two ranching operations, impacts that are not planned to be mitigated. In view of the tremendous quantity of coal that is proposed to be mined, making things right with the affected parties will amount to almost nothing in comparison. To require Ark through a coal permit condition to allow the impacted ranchers access to a federal grazing allotment and pay some additional damages for loss of value seem to be minor mitigation requirements compared to the larger unmitigated significant impacts these ranching operations will endure.

Sincerely,

Henry Hewitt

Henry Hewitt
Chairman

cc: Paul Long, Ark Land Company
Robert Scheer
Carbon County Commissioners
Carbon County Planning Commissioners

Response to Carbon County Planning Commission

As addressed in Management Considerations/Rationale for Decision, Item 2. Summary of Environmental Impacts - Socioeconomics and Visual Resources above, agricultural property value at the N/S Livestock Company may decrease during the LOM. The loss of property value is considered to be the result of visual intrusions caused by the dragline and spoil piles and is considered a temporary significant impact. The determination that property value may decline is not based on any economic calculation derived from the visual intrusion but is a response to the realization that different people view intrusions in different ways. The level of impact is dependant on the visual elements that constitute contrast: form, line, color, texture, as well as distance to, and screening from, the intrusion. The EIS discloses the impacts of the federal action as well as the impacts of private mining. This Record of Decision addresses the federal action of authorizing a lease sale of federal coal only. The nearest federal coal mining will occur over two miles from the N/S Livestock Company residence and the magnitude of the impact from federal land and any resultant loss in property value attributed to the federal action will be far less than the impact from the nearest private coal mining. Contemporaneous reclamation of all mined lands will relieve some of the temporary visual intrusion.

Potential impacts to the Johnson Ranch property have been mitigated through agreements between the ranch and Ark Land Company.

The BLM has determined, upon further review of federal grazing policy, that the N/S Livestock Company federal permit will be honored. This will allow the grazing permit to continue to be authorized under the BLM's grazing regulations with only minor adjustments to the ranching operation during the LOM. The minor loss of AUMs is considered an insignificant impact. See also Management Considerations/Rationale for Decision, Item 2. Summary of Environmental Impacts - Land Use, above.

A federal grazing permit is only applicable to the federal surface and federal AUMs and no guarantee of access across private land is implied. As stated in response to your comment letter in the FEIS, the BLM does not participate in negotiations between private landowners and potential federal coal lessees regarding private property values or compensation.

BLANK
PAGE

N / S LIVESTOCK COMPANY

February 6, 1999

U.S. Department of the Interior
Bureau of Land Management
Rawlins District Office
Attn: Kurt Kotter
1300 North Third Street
Rawlins, Wyoming 82301

Re: Carbon Basin Mine Project;
FEIS: Arch Mineral Corporation

Dear Mr. Kotter,

Thank you for the opportunity to comment on the FINAL, Carbon Basin Coal Project Environmental Impact Statement released by your office last month. I have delayed my response to this document in the hopes of reaching an agreement with Arch of Wyoming or Ark Land Company of St. Louis, Mo. concerning the issues raised during the exploratory discussions with the representatives of Ark Land Company throughout 1996, conveyed to the Bureau of Land Management in 1997, presented and further discussed in various formats with Arch of Wyoming, Ark Land Company and the Bureau of Land Management in 1998 with many of those issues confirmed both in the Draft and Final Environmental Impact Statements as issued. I am sad to report, that after three years of analysis, presentation and discussion, no agreement has been reached. As noted in my letter to the Bureau in response to the Draft EIS dated October 16, 1998, I understand the economic benefits of this proposed mine to the local communities, Carbon County, State of Wyoming and the Federal Government. From that perspective I continue to support the concept of this mine. In that same letter, I pointed out I have few alternatives remaining except to protect my interests. As each day passes without fair and reasonable settlement, the options become more limited.

To bring you up to date:

Shortly after the public hearing in Hanna last September, I met with another representative of Ark Land Company (different from the ones I had worked with before) and a representative of Arch of Wyoming, in their words, "to discuss the possibility of resolving our mutual concerns." Both of them acknowledged the existence of the agreement reached between us in 1998, but seemed disinterested in discussing it. Despite their lack of concern, I presented the agreement, complete with identification of the specific issues and the progress of the negotiations that led to the agreement. Both during and after presentation, their response was basically, "Nice agreement. We understand the basis and it makes sense, but that agreement is no longer an option." When I asked why, their response was, "the Ark lands involved in the agreement are no longer available." From their viewpoint, the only remaining option was for Ark to purchase my property! In their words, "this option would eliminate the conflict between our respective interests." Summarized, what started out as an exploratory identification of concerns between two reasonable parties, progressed to an agreement that mitigated the identified concerns in 1998. The terms and conditions of that agreement were willfully and maliciously destroyed by the representatives of Ark Land Company sometime after the Public Hearing in Hanna and after my meeting with them in September, 1998. From my perspective, it appears Ark Land Company has focused on forcing me "out of their way, off of my property, and out of business," by taking away most viable options previously available for settlement.

Allow me to continue...

In October 1998, I received a copy of a letter from the Bureau to the Carbon County Commissioners which states in part, "This analysis, (Draft EIS) was completed with the understanding that not all lands in the allotment would be mined, and therefore unavailable, and that livestock grazing would be allowed to continue at some level during the life of the mine." Yet, in a letter to me from Ark Land Company in January 1998, Ark pointed out they had spoken to your office and "according to the BLM, once the ground inside the fenced area is permitted and grazing restricted by the lessee (Day 1 of the life of the mine), (my) AUM allotments become inactive until the ground is released from bond." In other words, there would be no livestock grazing on the allotment during mining operations and reclamation. Early on in our negotiations, Ark Land Company representatives insisted there would be no grazing, hunting or other recreational use of the land within the CBCPA during the life of the mine. From that information, I agreed to surrender my BLM permit, a portion of my State Lease and additional deeded lands to Ark Land Company and restructure my operation, including the potential of relocating my home and animal care sites, to completely remove all of my activities and animal units from the CBCPA during the life of the mine in exchange for other lands owned by them so that I could continue to operate this ranch.

In spite of this knowledge, the October letter from the Bureau continues, "No notice from Ark Land Company (Ark) has been received that states that they intend to preclude livestock grazing on their lands during the life of the mine." From my readings, the Bureau must have received a notice of opposition to use of the private land in the North Assdatz allotment or at least understood the intentions of Ark Land Company, as in the same letter, your office "requires an agreement between Mr. Scherer and Ark authorizing Mr. Scherer to access Ark private property to graze livestock within the North Assdatz allotment." And then, a couple of days later, I received a letter from Ark Land Company stating, "Ark is willing to work diligently to convince the BLM to allow continued grazing on the federal sections, subject to Ark's right to mine the property." What is the translation here? From my perspective, for over two years, both Ark Land Company and your office have been aware of the intentions of Ark Land Company while I have been kept in the dark.

Critical review of the DEIS coupled with the FEIS confirms the conclusions reached in 1998 between Ark Land Company and myself, wherein my operations, employees, home, facilities and animals will sustain the most severe impact of all operators around the perimeter of this mine. As you ponder these conclusions, it is imperative that you also consider, Ark Land Company has traded with or provided other mitigation measures to other perimeter operators to enhance Ark Land Company's position to mine this area to its maximal profit potential. Simultaneously, they negotiated an agreement with me to satisfactorily mitigate the impacts identified to the date of agreement and then refused to be bound by it. Since the development of that agreement, they have refused to honor the previous agreements I had negotiated with Commonwealth Edison concerning two easements in place prior to the Ark Land Company purchase, refuse to provide or even offer remedies to the identified impacts as confirmed in the

3457, Laramie, Wyoming 82071 Phone / Fax 307 - 742 -

22

DEIS and FEIS on my operations and currently refuse to provide authorization for me to graze my federal allotment this next season. Their attempts to intimidate me from nearly every angle have failed. By mining the CBCPA, Arch of Wyoming will provide themselves a tremendous benefit, and only then will the local communities, Carbon County, State of Wyoming and the Federal Government receive any benefit. Without satisfactory mitigation the impacts to me will remain and will continue for the life of the mine... estimated to be about 30 years from the commencement of mining. From this position, I must insist the Record of Decision be delayed until reasonable mitigation of the defined issues have been completed.

With the finalization of the Environmental Impact Statement, I presume the verbage on Page 8-7 is accurate. "Agencies shall to the fullest extent possible use all practicable means, consistent with the requirements of NEPA and other essential considerations of national policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment. As my operation constitutes the most impacted of all human environments in the area, I have looked to the Bureau of Land Management for assistance. Lacking a delay of the Record of Decision, perhaps the single thread of hope I have short of intense protection of my interests is on page (vi), of the Executive Summary... "The Record of Decision for this project will include a decision...on all stipulations to be added to any coal lease."

My question to you then becomes, if the Record of Decision can not be postponed, what stipulations will be placed in the Record of Decision?

Thank you for your time in considering my response.

Sincerely,

Robert L. Schaser II

Response to N/S Livestock

It is obvious that a considerable amount of time and energy has gone into negotiations concerning Ark Land Company plans to mine coal and the relation of those mining activities to your ranching operations and properties. It is unfortunate that an agreement has not be finalized that is satisfactory to both parties.

As identified in our response to the Carbon County Planning Commission above, the N/S Livestock Company federal grazing permit will be renewed. This federal authorization is only applicable to the federal surface and federal AUMs and no guarantee of access across private land is implied. The BLM holds to the position that any attempt to stipulate the actions of any successful bidder of the coal lease in regards to access across private property owned by Ark Land Company would be to interfere with the private property rights of Ark Land Company under State of Wyoming law and the Constitution of the United States.

Authorizing the continued use of the federal grazing permit will effectively mitigate the loss of property value to the N/S Livestock Company from loss of use of the federal grazing permit. This continued authorization of the federal grazing permit is consistent with the BLM's grazing regulations and can be accomplished without specific stipulation to the federal coal lease.

BLANK
PAGE

Budd-Falen Law Offices, P.C.

Karen Budd-Falen
Franklin J. Falen
L. Eric Lundgren •
Gus Redmond Nichols III •
Jeffrey B. Teichert • ◊
John H. McColl •

300 East 18th Street
Post Office Box 346
Cheyenne, Wyoming 82003-0346
Telephone 307/632-5105
Telefax 307/637-3891
[illegible]

• admitted in Colorado
• admitted in Arizona
◊ admitted in Utah

RECEIVED
FEB 12 1999
BUREAU OF LAND MANAGEMENT
RAWLINS FIELD OFFICE

February 5, 1999

CERTIFIED MAIL/RETURN RECEIPT REQUESTED
Z [illegible]

Kurt Kotter [illegible]
Rawlins Field Office
Bureau of Land Management
1300 North Third Street
Rawlins, WY 82301

Re: Robert Scherer, Permittee

Dear Mr. Kotter:

I write on behalf of permittee Robert Scherer. This letter is a comment on the Final Carbon Basin Coal Project Environmental Impact Statement ("FEIS").

The FEIS indicates that the mining permit application would require Arch to develop a detailed soil handling plan to deal with soil stockpiles occasioned by the mine, (FEIS at xvi), a detailed soil replacement and reclamation plan to restore soil productivity, Id., a detailed surface water protection plan, Id., a wetland mitigation plan, (FEIS at xvii), and other mitigation studies. (FEIS at 5-1). Based on these yet to be developed mitigation measures, the FEIS concludes that Arch's intended mining activity will not significantly impact these resources.

The National Environmental Policy Act ("NEPA") requires information included in an FEIS "must be of high quality," and that "[a]ccurate scientific analysis . . . [is] essential to implementing NEPA." 40 C.F.R. § 1500.1(b). The purpose of NEPA is to require agencies to disclose the scientific basis for their conclusions. Idaho Sporting Congress v. Thomas, 137 F.3d 1146, 1149 (9th Cir. 1998); Inland Empire Pub. Lands v. Forest Service, 88 F.3d 754, 758 (9th Cir. 1996). The Ninth Circuit recently held that "NEPA requires that the public receive the underlying data from which [an agency] expert derived her opinion." Idaho Sporting Congress, supra, 137 F.3d at 1150. The FEIS contains no data regarding the possible effects of mining on soil, water resources, or wetlands. The FEIS admits that mining activity could result in serious damage to these resources, but gets around that real

F:\PA\Scherer\Letter\FEIS Comment.wpd

Kurt Kotter
February 8, 1999
Page 2

danger by requiring Arch to develop mitigation plans. However, the public has not had an opportunity to review and comment on these proposed mitigation plans as required by NEPA. The agency should, therefore, wait to release the FEIS until Arch has submitted its mitigation plans, the BLM has had an opportunity to analyze the merit of the plans in the FEIS, and the public has had an adequate opportunity to comment.

The FEIS further admits that Mr. Scherer's property values will be significantly reduced because of the mine. (FEIS at 2-13). This diminution in value may result in a taking of private property without just compensation in violation of the Fifth Amendment to the United States Constitution. Although "the general law" may diminish the property values of some individuals without offending the Constitution, "if regulation goes too far it will be recognized as a taking." Pennsylvania Coal v. Mahon, 260 U.S. 393, 413-415 (1922). According to the Courts: "One of the principal purposes of the Takings Clause is 'to bar Government from forcing some people alone to bear public burdens which, in all fairness and justice, should be borne by the public as a whole.'" Dolan v. Tigard, 129 L.Ed 304, 315-16 (1994) (quoting Armstrong v. United States, 364 U.S. 40, 49 (1960)).

Under Executive Order 12630, federal agencies are required to analyze any potential takings implications of their actions, decisions or regulations regarding government use of private property. An agency may commit a taking only after it formally determines that it is in the public interest to appropriate private property. If a taking is committed, the government must justly compensate the private property owner for his/her losses. The Executive Order dictates that the BLM evaluate the possible takings implications when the possibility of a taking is present. Executive Order No. 12630 §§ 1(b)-(c), 5(c) (1988). The FEIS included no takings impact analysis. Thus, Mr. Scherer requests that a takings implication assessment be completed pursuant to Executive Order 12630.

The BLM should withdraw its FEIS until the aforementioned irregularities can be corrected.

Respectfully,

Jeffrey B. Teichert
BUDD-FALEN LAW OFFICES, P.C.

JBT:pjj
cc: Robert Scherer

F:\PA\Scherer\Letter\FEIS Comment.wpd

danger by requiring Arch to develop mitigation plans. However, the public has not had an opportunity to review and comment on these proposed mitigation plans as required by NEPA. The agency should, therefore, wait to release the FEIS until Arch has submitted its mitigation plans, the BLM has had an opportunity to analyze the merit of the plans in the FEIS, and the public has had an adequate opportunity to comment.

The FEIS further admits that Mr. Scherer's property values will be significantly reduced because of the mine. (FEIS at 2-13). This diminution in value may result in a taking of private property without just compensation in violation of the Fifth Amendment to the United States Constitution. Although "the general law" may diminish the property values of some individuals without offending the Constitution, "if regulation goes too far it will be recognized as a taking." Pennsylvania Coal v. Mahon, 260 U.S. 393, 413-415 (1922). According to the Courts: "One of the principal purposes of the Takings Clause is 'to bar Government from forcing some people alone to bear public burdens which, in all fairness and justice, should be borne by the public as a whole.'" Dolan v. Tigard, 129 L.Ed 304, 315-16 (1994) (quoting Armstrong v. United States, 364 U.S. 40, 49 (1960)).

Under Executive Order 12630, federal agencies are required to analyze any potential takings implications of their actions, decisions or regulations regarding government use of private property. An agency may commit a taking only after it formally determines that it is in the public interest to appropriate private property. If a taking is committed, the government must justly compensate the private property owner for his/her losses. The Executive Order dictates that the BLM evaluate the possible takings implications when the possibility of a taking is present. Executive Order No. 12630 §§ 1(b)-(c), 5(c) (1988). The FEIS included no takings impact analysis. Thus, Mr. Scherer requests that a takings implication assessment be completed pursuant to Executive Order 12630.

The BLM should withdraw its FEIS until the aforementioned irregularities can be corrected.

Respectfully,

Jeffrey B. Teichert
BUDD-FALEN LAW OFFICES, P.C.

JBT:pjj
cc: Robert Scherer

F:\PAM\Scherer\Letter\FEIS Comment.wpd

Response to Budd-Falen Law Offices

The purpose of this EIS is to present sufficient information for the public and the decisionmaker to determine whether federal coal leasing in the CBCPA is an appropriate action based on the impacts that are likely to occur during mining.

The detailed (mitigation) plans to which you refer are actually included in the permit application and are part of the next step a proponent takes prior to actually being authorized to conduct coal mining operations. This permit must meet the requirements of the Surface Mining Control and Reclamation Act of 1977 (SMCRA), an act aimed at the minimization of environmental impacts associated with mining. This act contains detailed environmental protection standards (i.e., mitigation) for mining and reclamation. In the State of Wyoming, permits must be approved prior to the commencement of mining by the state regulatory agency, WDEQ. The permits are issued for a period of five years with the right of successive renewal. The application requires extensive information including the details of mining, probable hydrologic consequences, climatological data, maps, geologic cross-sections, and drill logs of coal deposits, etc. The applicant must post public notice in a local newspaper for four weeks and must clearly state the location of the proposed mining operation and the location where the application is available for public inspection.

The reclamation plan must identify the uses of the land at the time of application, any previous mining history, the capability and productivity of the land to support other uses, and the proposed land use after mining and reclamation. Title V, Section 515 of SMCRA provides a list of minimum environmental performance standards that are applicable to all surface coal mining and reclamation operations. Among these standards are some of the items of concern to you including how topsoil and spoil material will be handled and replaced and what methods will be utilized to protect water quality.

Laws and policy are in-place which require that jurisdictional and non-jurisdictional wetlands be protected or replaced in-kind. Please see Comment Response D14 in the FEIS for more information on how wetland values located in the CBCPA will be protected.

You correctly state in your letter that the EIS says that coal mining may reduce the value of property located adjacent to the CBCPA under both the No Action and Proposed Action Alternatives. In your letter you assert that the leasing of federal coal (the Proposed Action) in the CBCPA will result in a significant reduction in Mr. Scherer's property values which may result in a taking of private property without just compensation. You have requested that the BLM complete a Takings Implication Assessment.

The BLM has reviewed Executive Order 12630 and has determined that leasing federal coal within the CBCPA has no takings implications under the provisions of the Fifth Amendment of the Constitution of the United States. By offering to lease federal coal within the CBCPA, the United States is exercising its lawful right to dispose of this coal under the Mineral Leasing Act of 1920, as amended. Accordingly, no Takings Implication Assessment will be completed pursuant to this matter.

Mitigation and Monitoring

The standard coal lease stipulations addressing compliance with the basic requirements of the environmental statutes will be attached to the proposed coal lease to be offered (Appendix 1). Consistent with the EIS, the attached stipulations regarding cultural resources, paleontological resources, oil and gas/coal resource development, resource recovery and protection, and public land survey protection will also be attached to the proposed coal lease to be offered.

The Surface Mining Control and Reclamation Act of 1977 (SMCRA) gives the Office of Surface Mining Reclamation and Enforcement the primary authority to administer programs regulating surface coal mining operations. In the State of Wyoming, the Wyoming Department of Environmental Quality has the approval of the Secretary of the Interior to regulate surface coal mining activities in the state. The successful bidder for the Elk Mountain/Saddleback Hills coal lease tract must obtain approval of a mine permit prior to mining. Additional mitigation measures specific to the proposed mine plan will be attached as conditions on the mining permit during this stage. BLM has a responsibility to review the mine permit application prior to its approval to ensure that the mine plan is in compliance with the leasing stipulations and that the mine plan meets the requirements of the Mineral Leasing Act.

Compliance with the applicable regulations and monitoring of impacts will be carried out as outlined in the mining and reclamation plan which must be approved by Wyoming DEQ and by OSM prior to the commencement of mining.

Applicant-Committed Mitigation

Arch has committed to implementing the following mitigation measures as follow.

1. If the conveyor is chosen as a transportation alternative, Arch will conduct a crossing study. If additional mitigation is required, it will be developed based on study results.

2. Wing-type snow removal equipment will be used, where feasible, to prevent or minimize snow accumulation along roads.

Federal Coal Lease WYW139975 Special Stipulations

Additional stipulations listed below have been identified as mitigation measures during the environmental review process. These stipulations will become a part of the federal coal lease document and pertain to all lands described in the coal lease tract.

1. Prior to disturbance, all wetlands, whether jurisdictional or non-jurisdictional, will be delineated by the lessee. If wetlands are discovered on any of these lands leased for federal coal during these surveys, the lessee will contact the BLM prior to disturbance to determine the action to take either to: 1) protect, or 2) restore the value of these areas after mining to ensure no net loss of wetlands.

2. The lessee will be required to monitor and inventory the lease area for establishment of potential black-footed ferret habitat. If any such habitat is found the lessee will conduct ferret clearance surveys per USFWS guidelines. In the event that ferret occurrence is identified, the lessee shall notify the BLM and USFWS and will be required to adhere to any modifications in the mining operation provided by the USFWS and the BLM to protect endangered species. Power poles near prairie dog towns will be equipped with raptor anti-perching devices.

3. Surface disturbance of swift fox habitat will be minimized to the extent possible; reclamation will be initiated as soon as possible after disturbance.

4. The lessee will comply with all actions required by USFWS which are identified in the "Terms and Conditions" section of the June 3, 1999, document entitled "Biological and Conference Opinion for the Carbon Basin Coal Project."

5. All activities and surface disturbance associated with mining or other related activities will not be permitted within one mile of an active or bald eagle nest from February 1 until August 15, or until the nest becomes inactive.

6. All activities and surface disturbance associated with mining or other related activities will not be permitted within one mile of an active peregrine falcon nest from March 1 until August 15, or until the nest becomes inactive.

7. All potential habitat for TE&C plant species to be disturbed would be surveyed for TE&C plant species prior to disturbance using USFWS guidelines.

8. If TE&C plant populations are discovered they would be avoided where possible. Where avoidance is not feasible, other mitigation measures approved by the USFWS and BLM would be implemented.

9. Sage grouse habitat areas will be open to coal development provided that: 1) the surface-disturbing activities related to exploration and ancillary facility development avoid the lek and a 0.25 mile radius from the lek areas, if possible. If not possible, intensive mitigation will be applied; 2) permanent and high profile structures such as buildings, overhead power lines, etc., are prohibited in the lek and a 0.25 mile radius from the lek area; 3) during the sage grouse mating season, surface uses and activities will be prohibited between the hours of 6 p.m. and 9 a.m., within 0.5 miles of the lek; 4) surface disturbance in the nesting area and within a 2-mile radius is limited to actual mining activity. Other construction activities (i.e., road or facility construction, exploration activities, etc.,) will be subject to seasonal limitations (February 1 through July 31); and 5) attempts made to relocate lek and nesting complexes disturbed or destroyed by coal mining are coordinated with the BLM, WGFD, and other appropriate state agencies. Exception, waiver, or modification of these limitations in any year may be approved in writing, including documentation supported by analysis by the authorized official.

10. In areas where crucial habitat is disturbed, the lessee will be required to develop mitigation measures or habitat improvement in accordance with mining and reclamation plan requirements in consultation with, and to the satisfaction of, BLM and appropriate State agencies.

11. Prior rights will be protected for all ROWs of record.

RECOMMENDATION

I recommend that a competitive lease sale be held for Federal coal tract WYW139975, affecting 5,235.15 acres, and a lease be issued to the successful qualified bidder if it is determined that the highest bid meets or exceeds the fair market value of the tract as determined by the BLM, and if all other leasing requirements are met. The competitive lease sale will be held in accordance with the requirements of 43 CFR 3425. The lease will be subject to special stipulations as attached and shown in the Mitigation and Monitoring Section of this Record of Decision.

Rawlins Field Manager

6/15/99
Date

APPROVED:

Based on the recommendations of the Rawlins Field Manager, I hereby approve the decision to offer Federal coal tract WYW139975 for competitive lease sale.

Appeal Procedure

This decision may be appealed to the Interior Board of Land Appeals, Office of the Secretary, in accordance with the regulations contained in 43 CFR, Part 4 and the enclosed Form 1842-1. If an appeal is taken, your notice of appeal must be filed in this office (at the address shown on enclosed Form 1842-1) within 30 days from receipt of this decision. The appellant has the burden of showing that the decision appealed from is in error.

If you wish to file a petition [pursuant to regulation 43 CFR 4.21 (58 FR 4939, January 19, 1993)] (request) for a stay (suspension) of the effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for a stay must accompany your notice of appeal. A petition for a stay must also be submitted to each party named in this decision and to the Interior Board of Land Appeals and to the appropriate Office of the Solicitor (see 43 CFR 4.413) at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

Standard for Obtaining a Stay

Except as otherwise provided by law or other pertinent regulation, a petition for a stay of a decision pending appeal shall show sufficient justification based on the following standards:

(1) The relative harm to the parties if the stay is granted or denied,

(2) The likelihood of the appellant's success on the merits,

(3) The likelihood of immediate and irreparable harm if the stay is not granted, and

(4) Whether the public interest favors granting the stay.

Alan R. Pierson
Wyoming State Director, BLM

June 18, 1999
Date

APPENDIX 1

BLM STANDARD LEASE FORM

Form 3400-12
(April 1986)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

COAL LEASE

Serial Number

PART I. LEASE RIGHTS GRANTED

This lease, entered into by and between the UNITED STATES OF AMERICA, hereinafter called lessor, through the Bureau of Land Management, and *(Name and Address)*

hereinafter called lessee, is effective *(date)* , for a period of 20 years and for so long thereafter as coal is produced in commercial quantities from the leased lands, subject to readjustment of lease terms at the end of the 20th lease year and each 10-year period thereafter.

Sec. 1. This lease is issued pursuant and subject to the terms and provisions of the:

☐ Mineral Lands Leasing Act of 1920, Act of February 25, 1920, as amended, 41 Stat. 437, 30 U.S.C. 181-287, hereinafter referred to as the Act;

☐ Mineral Leasing Act for Acquired Lands, Act of August 7, 1947, 61 Stat. 913, 30 U.S.C. 351-359;

and to the regulations and formal orders of the Secretary of the Interior which are now or hereafter in force, when not inconsistent with the express and specific provisions herein.

Sec. 2. Lessor, in consideration of any bonuses, rents, and royalties to be paid, and the conditions and covenants to be observed as herein set forth, hereby grants and leases to lessee the exclusive right and privilege to drill for, mine, extract, remove, or otherwise process and dispose of the coal deposits in, upon, or under the following described lands:

containing acres, more or less, together with the right to construct such works, buildings, plants, structures, equipment and appliances and the right to use such on-lease rights-of-way which may be necessary and convenient in the exercise of the rights and privileges granted, subject to the conditions herein provided.

PART II. TERMS AND CONDITIONS

Sec. 1. (a) RENTAL RATE - Lessee shall pay lessor rental annually and in advance for each acre or fraction thereof during the continuance of the lease at the rate of $ for each lease year.

(b) RENTAL CREDITS - Rental shall not be credited against either production or advance royalties for any year.

Sec. 2. (a) PRODUCTION ROYALTIES - The royalty shall be percent of the value of the coal as set forth in the regulations. Royalties are due to lessor the final day of the month succeeding the calendar month in which the royalty obligation accrues.

(b) ADVANCE ROYALTIES - Upon request by the lessee, the authorized officer may accept, for a total of not more than 10 years, the payment of advance royalties in lieu of continued operation, consistent with the regulations. The advance royalty shall be based on a percent of the value of a minimum number of tons determined in the manner established by the advance royalty regulations in effect at the time the lessee requests approval to pay advance royalties in lieu of continued operation.

Sec. 3. BONDS - Lessee shall maintain in the proper office a lease bond in the amount of $. The authorized officer may require an increase in this amount when additional coverage is determined appropriate.

Sec. 4. DILIGENCE - This lease is subject to the conditions of diligent development and continued operation, except that these conditions are excused when operations under the lease are interrupted by strikes, the elements, or casualties not attributable to the lessee. The lessor, in the public interest, may suspend the condition of continued operation upon payment of advance royalties in accordance with the regulations in existence at the time of the suspension. Lessee's failure to produce coal in commercial quantities at the end of 10 years shall terminate the lease. Lessee shall submit an operation and reclamation plan pursuant to Section 7 of the Act not later than 3 years after lease issuance.

The lessor reserves the power to assent to or order the suspension of the terms and conditions of this lease in accordance with, inter alia, Section 39 of the Mineral Leasing Act, 30 U.S.C. 209.

Sec. 5. LOGICAL MINING UNIT (LMU) - Either upon approval by the lessor of the lessee's application or at the direction of the lessor, this lease shall become an LMU or part of an LMU, subject to the provisions set forth in the regulations.

The stipulations established in an LMU approval in effect at the time of LMU approval will supersede the relevant inconsistent terms of this lease so long as the lease remains committed to the LMU. If the LMU of which this lease is a part is dissolved, the lease shall then be subject to the lease terms which would have been applied if the lease had not been included in an LMU.

Sec. 6. DOCUMENTS, EVIDENCE AND INSPECTION - At such times and in such form as lessor may prescribe, lessee shall furnish detailed statements showing the amounts and quality of all products removed and sold from the lease, the proceeds therefrom, and the amount used for production purposes or unavoidably lost.

Lessee shall keep open at all reasonable times for the inspection of any duly authorized officer of lessor, the leased premises and all surface and underground improvements, works, machinery, ore stockpiles, equipment, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or under the leased lands.

Lessee shall allow lessor access to and copying of documents reasonably necessary to verify lessee compliance with terms and conditions of the lease.

While this lease remains in effect, information obtained under this section shall be closed to inspection by the public in accordance with the Freedom of Information Act (5 U.S.C. 552).

Sec. 7. DAMAGES TO PROPERTY AND CONDUCT OF OPERATIONS - Lessee shall comply at its own expense with all reasonable orders of the Secretary, respecting diligent operations, prevention of waste, and protection of other resources.

Lessee shall not conduct exploration operations, other than casual use, without an approved exploration plan. All exploration plans prior to the commencement of mining operations within an approved mining permit area shall be submitted to the authorized officer.

Lessee shall carry on all operations in accordance with approved methods and practices as provided in the operating regulations, having due regard for the prevention of injury to life, health, or property, and prevention of waste, damage or degradation to any land, air, water, cultural, biological, visual, and other resources, including mineral deposits and formations of mineral deposits not leased hereunder, and to other land uses or users. Lessee shall take measures deemed necessary by lessor to accomplish the intent of this lease term. Such measures may include, but are not limited to, modification to proposed siting or design of facilities, timing of operations, and specification of interim and final reclamation procedures. Lessor reserves to itself the right to lease, sell, or otherwise dispose of the surface or other mineral deposits in the lands and the right to continue existing uses and to authorize future uses upon or in the leased lands, including issuing leases for mineral deposits not covered hereunder and approving easements or rights-of-way. Lessor shall condition such uses to prevent unnecessary or unreasonable interference with rights of lessee as may be consistent with concepts of multiple use and multiple mineral development.

Sec. 8. PROTECTION OF DIVERSE INTERESTS, AND EQUAL OPPORTUNITY - Lessee shall : pay when due all taxes legally assessed and levied under the laws of the State or the United States; accord all employees complete freedom of purchase; pay all wages at lease twice each month in lawful money of the United States; maintain a safe working environment in accordance with standard industry practices; restrict the workday to not more than 8 hours in any one day for underground workers, except in emergencies; and take measures necessary to protect the health and safety of the public. No person under the age of 16 years shall be employed in any mine below the surface. To the extent that laws of the State in which the lands are situated are more restrictive than the provisions in this paragraph, then the State laws apply.

Lessee will comply with all provisions of Executive Order No. 11246 of September 24, 1965, as amended, and the rules, regulations, and relevant orders of the Secretary of Labor. Neither lessee nor lessee's subcontractors shall maintain segregated facilities.

Sec. 9. (a) TRANSFERS

☐ This lease may be transferred in whole or in part to any person, association or corporation qualified to hold such lease interes

☐ This lease may be transferred in whole or in part to anoth public body or to a person who will mine the coal on behalf of, a for the use of, the public body or to a person who for the limited purpose of creating a security interest in favor of a lender agre to be obligated to mine the coal on behalf of the public body.

☐ This lease may only be transferred in whole or in part to anothe small business qualified under 13 CFR 121.

Transfers of record title, working or royalty interest *must* approved in accordance with the regulations.

(b) RELINQUISHMENT - The lessee may relinquish in writing at any time all rights under this lease or any portion thereof as provided in th regulations. Upon lessor's acceptance of the relinquishment, les shall be relieved of all future obligations under the lease or t relinquished portion thereof, whichever is applicable.

Sec. 10. DELIVERY OF PREMISES, REMOVAL OF MACHINERY, EQUIP-MENT, ETC. - At such time as all portions of this lease are returned lessor, lessee shall deliver up to lessor the land leased, undergrou timbering, and such other supports and structures necessary for the preservation of the mine workings on the leased premises or deposits and place all workings in condition for suspension or abandonme Within 180 days thereof, lessee shall remove from the premises all oth structures, machinery, equipment, tools, and materials that it elects or as required by the authorized officer. Any such structures, machinery, equipment, tools, and materials remaining on the leased lan beyond 180 days, or approved extension thereof, shall become t property of the lessor, but lessee shall either remove any or all su property or shall continue to be liable for the cost of removal and disposal in the amount actually incurred by the lessor. If the surface is owned by third parties, lessor shall waive the requirement for remov provided the third parties do not object to such waiver. Lessee sha prior to the termination of bond liability or at any other time whe required and in accordance with all applicable laws and regulations, reclaim all lands the surface of which has been disturbed, dispose of al debris or solid waste, repair the offsite and onsite damage caused b lessee's activity or activities incidental thereto, and reclaim acce roads or trails.

Sec. 11. PROCEEDINGS IN CASE OF DEFAULT - If lessee fails to compl with applicable laws, existing regulations, or the terms, conditions an stipulations of this lease, and the noncompliance continues for 30 day after written notice thereof, this lease shall be subject to cancellation by the lessor only by judicial proceedings. This provision shall not be construed to prevent the exercise by lessor of any other legal an equitable remedy, including waiver of the default. Any such remedy o waiver shall not prevent later cancellation for the same defau occurring at any other time.

Sec. 12. HEIRS AND SUCCESSORS-IN-INTEREST - Each obligation o this lease shall extend to and be binding upon, and every benefit hereo shall inure to, the heirs, executors, administrators, successors, o assigns of the respective parties hereto.

Sec. 13. INDEMNIFICATION - Lessee shall indemnify and hold harmles the United States from any and all claims arising out of the lessee' activities and operations under this lease.

Sec. 14. SPECIAL STATUTES - This lease is subject to the Clean Wate Act (33 U.S.C. 1252 et. seq.), the Clean Air Act (42 U.S.C. 4274 et. seq.) and to all other applicable laws pertaining to exploration activities, mining operations and reclamation, including the Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1201 et. seq.).

Sec. 15. SPECIAL STIPULATIONS -

SEC. 15. SPECIAL STIPULATIONS -

In addition to observing the general obligations and standards of performance set out in the current regulations, the lessee shall comply with and be bound by the following special stipulations.

These stipulations are also imposed upon the lessee's agents and employees. The failure or refusal of any of these persons to comply with these stipulations shall be deemed a failure of the lessee to comply with the terms of the lease. The lessee shall require his agents, contractors and subcontractors involved in activities concerning this lease to include these stipulations in the contracts between and among them. These stipulations may be revised or amended, in writing, by the mutual consent of the lessor and the lessee at any time to adjust to changed conditions or to correct an oversight.

(a) *CULTURAL RESOURCES* -

(1) Before undertaking any activities that may disturb the surface of the leased lands, the lessee shall conduct a cultural resource intensive field inventory in a manner specified by the authorized officer of the BLM or of the surface managing agency, if different, on portions of the mine plan area and adjacent areas, or exploration plan area, that may be adversely affected by lease-related activities and which were not previously inventoried at such a level of intensity. The inventory shall be conducted by a qualified professional cultural resource specialist (i.e., archeologist, historian, historical architect, as appropriate), approved by the authorized officer of the surface managing agency (BLM, if the surface is privately owned), and a report of the inventory and recommendations for protecting any cultural resources identified shall be submitted to the Assistant Director of the Western Support Center of the Office of Surface Mining, the authorized officer of the BLM, if activities are associated with coal exploration outside an approved mining permit area (hereinafter called Authorized Officer), and the Authorized Officer of the surface managing agency, if different. The lessee shall undertake measures, in accordance with instructions from the Assistant Director, or Authorized Officer, to protect cultural resources on the leased lands. The lessee shall not commence the surface disturbing activities until permission to proceed is given by the Assistant Director or authorized officer.

(2) The lessee shall protect all cultural resource properties within the lease area from lease-related activities until the cultural resource mitigation measures can be implemented as part of an approved mining and reclamation or exploration plan.

(3) The cost of conducting the inventory, preparing reports, and carrying out mitigation measures shall be borne by the lessee.

(4) If cultural resources are discovered during operations under this lease, the lessee shall immediately bring them to the attention of the Assistant Director or Authorized Officer, or the Authorized Officer of the surface managing agency, if the Assistant Director is not available. The lessee shall not disturb such resources except as may be subsequently authorized by the Assistant Director or Authorized Officer.

Within two (2) working days of notification, the Assistant Director or Authorized Officer will evaluate or have evaluated any cultural resources discovered and will determine if any action may be required to protect or preserve such discoveries. The cost of data recovery for cultural resources discovered during lease operations shall be borne by the surface managing agency unless otherwise specified by the Authorized Officer of the BLM or of the surface managing agency, if different.

(5) All cultural resources shall remain under the jurisdiction of the United States until ownership is determined under applicable law.

(b) ***PALEONTOLOGICAL RESOURCES*** - If paleontological resources, either large and conspicuous, and/or of significant scientific value are discovered during construction, the find will be reported to the Authorized Officer immediately. Construction will be suspended within 250 feet of said find. An evaluation of the paleontological discovery will be made by a BLM approved professional paleontologist within five (5) working days, weather permitting, to determine the appropriate action(s) to prevent the potential loss of any significant paleontological value. Operations within 250 feet of such discovery will not be resumed until written authorization to proceed is issued by the Authorized Officer. The lessee will bear the cost of any required paleontological appraisals, surface collection of fossils, or salvage of any large conspicuous fossils of significant scientific interest discovered during the operations.

(c) ***MULTIPLE MINERAL DEVELOPMENT*** - Operations will not be approved which, in the opinion of the Authorized Officer, would unreasonably interfere with the orderly development and/or production from a valid existing mineral lease issued prior to this one for the same lands.

(d) ***OIL AND GAS/COAL RESOURCES*** - The BLM realizes that coal mining operations conducted on Federal coal leases issued within producing oil and gas fields may interfere with the economic recovery of oil and gas; just as Federal oil and gas leases issued in a Federal coal lease area may inhibit coal recovery. BLM retains the authority to alter and/or modify the resource recovery and protection plans for coal operations and/or oil and gas operations on those lands covered by Federal mineral leases so as to obtain maximum resource recovery.

(e) ***RESOURCE RECOVERY AND PROTECTION*** - Notwithstanding the approval of a resource recovery and protection plan (R2P2) by the BLM, lessor reserves the right to seek damages against the operator/lessee in the event (i) the operator/lessee fails to achieve maximum economic recovery (MER) (as defined at 43 CFR 3480.0-5(21)) of the recoverable coal reserves or (ii) the operator/lessee is determined to have caused a wasting of recoverable coal reserves. Damages shall be measured on the basis of the royalty that would have been payable on the wasted or unrecovered coal.

The parties recognize that under an approved R2P2, conditions may require a modification by the operator/lessee of that plan. In the event a coalbed or portion thereof is not to be mined or is rendered unmineable by the operation, the operator/lessee shall submit appropriate justification to obtain approval by the authorized officer (AO) to leave such reserves unmined. Upon approval by the AO, such coalbeds or portions thereof shall not be subject to damages as described above. Further, nothing in this section shall prevent the operator/lessee from exercising its right to relinquish all or portion of the lease as authorized by statute and regulation.

In the event the AO determines that the R2P2, as approved, will not attain MER as the result of changed conditions, the AO will give proper notice to the operator/lessee as required under applicable regulations. The AO will order a modification if necessary, identifying additional reserves to be mined in order to attain MER. Upon a final administrative or judicial ruling upholding such an ordered modification, any reserves left unmined (wasted) under that plan will be subject to damages as described in the first paragraph under this section.

Subject to the right to appeal hereinafter set forth, payment of the value of the royalty on such unmined recoverable coal reserves shall become due and payable upon determination by the AO that the coal reserves have been rendered unmineable or at such time that the operator/lessee has demonstrated an unwillingness to extract the coal.

The BLM may enforce this provision either by issuing a written decision requiring payment of the MMS demand for such royalties, or by issuing a notice of non-compliance. A decision or notice of non-compliance issued by the lessor that payment is due under this stipulation is appealable as allowed by law.

(f) ***PUBLIC LAND SURVEY PROTECTION*** - The lessee will protect all survey monuments, witness corners, reference monuments, and bearing trees against destruction, obliteration, or damage during operations on the lease areas. If any monuments, corners or accessories are destroyed, obliterated, or damaged by this operation, the lessee will hire an appropriate county surveyor or registered land surveyor to reestablish or restore the monuments, corners, or accessories at the same location, using surveying procedures in accordance with the "Manual of Surveying Instructions for the Survey of the Public Lands of the United States." The survey will be recorded in the appropriate county records, with a copy sent to the Authorized Officer.

APPENDIX 2

FORM 1842-1, INFORMATION ON TAKING APPEALS TO THE BOARD OF LAND APPEALS

Form 1842-1
(February 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

INFORMATION ON TAKING APPEALS TO THE BOARD OF LAND APPEALS

DO NOT APPEAL UNLESS

1. This decision is adverse to you,

AND

2. You believe it is incorrect

IF YOU APPEAL, THE FOLLOWING PROCEDURES MUST BE FOLLOWED

1. NOTICE OF APPEAL . . . . Within 30 days file a *Notice of Appeal* in the office which issued this decision (see 43 CFR Secs. 4.411 and 4.413). You may state your reasons for appealing, if you desire.

2. WHERE TO FILE NOTICE OF APPEAL . . .

SOLICITOR ALSO COPY TO . . . .

3. STATEMENT OF REASONS . . Within 30 days after filing the *Notice of Appeal*, file a complete statement of the reasons why you are appealing. This must be filed with the United States Department of the Interior, Office of the Secretary, Board of Land Appeals, 4015 Wilson Blvd., Arlington, Virginia 22203 (see 43 CFR Sec. 4.412 and 4.413). If you fully stated your reasons for appealing when filing the *Notice of Appeal*, no additional statement is necessary.

SOLICITOR ALSO COPY TO . . . .

4. ADVERSE PARTIES . . . . Within 15 days after each document is filed, each adverse party named in the decision and the Regional Solicitor or Field Solicitor having jurisdiction over the State in which the appeal arose must be served with a copy of: (a) the *Notice of Appeal*, (b) the Statement of Reasons, and (c) any other documents filed (see 43 CFR Sec. 4.413). Service will be made upon the Associate Solicitor, Division of Energy and Resources, Washington, D.C. 20240, instead of the Field or Regional Solicitor when appeals are taken from decisions of the Director (WO–100).

5. PROOF OF SERVICE . . . . Within 15 days after any document is served on an adverse party, file proof of that service with the United States Department of the Interior, Office of the Secretary, Board of Land Appeals, 4015 Wilson Blvd., Arlington, Virginia 22203. This may consist of a certified or registered mail "Return Receipt Card" signed by the adverse party (see 43 CFR Sec. 4.401(c)(2)).

Unless these procedures are followed your appeal will be subject to dismissal (see 43 CFR Sec. 4.402). Be certain that all communications are identified by serial number of the case being appealed.

NOTE: *A document is not filed until it is actually received in the proper office (see 43 CFR Sec. 4.401(a))*

APPENDIX 3

ERRATA

ERRATA
for the
Elk Mountain/Saddleback Hills Coal Lease Application Environmental Impact Statement

Table 2.18a, on Page 2-4 of the FEIS. Under Climate and Air Quality, information presented under the columns "Proposed Action" and "Cumulative Project Impacts" should be reversed. Under "Cumulative Project Impacts" column change 225 ug/m3 to 2.25 ug/m3 increase in Nox.

Table 2.18a, on Page 2-9 of the FEIS. Vegetation, information under the No Action and Cumulative Project Impacts columns and row labeled "Changes in vegetative diversity following reclamation.." should read a "Long-term reduction in diversity and number of shrubs..." rather than a short-term reduction.

Table 8.1, on Page 8-7 of the FEIS should be corrected to read as shown on attached table.

Table 8.2, on Page 8-30 of the FEIS should be corrected to read as shown on attached table.

BLANK
PAGE

Table 8.1 Estimated Air Quality Emissions from the Combustion of All Coal Produced[1] from the Proposed Carbon Basin Coal Project.

Pollutant	BACT Emissions[2] Factors	Emissions (tons)[3]	Emissions (tpy)[4]	Percent of Annual U.S. Emissions
SO_2	0.18 lb/mmBTU	241,867	12,093	0.08
NO_x[5]	0.15 lb/mmBTU	201,556	10,078	0.13
VOC	0.015 lb/mmBTU	20,156	1,008	--
CO[5]	0.15 lb/mmBTU	201,556	10,078	--
Particulate	0.02 lb/mmBTU	26,874	1,344	--
CO_2[5]	5,680 lb/ton	338,309,320	16,915,466	0.0002
Total		339,001,329	16,950,067	--

[1] Proposed maximum LOM production is 119.123 million tons.

[2] Source: WDEQ/AQD standards and Two Elk Generation Partners, L.P. Permit Application Analysis AP 857, WDEQ/AQD. December 16, 1997.

[3] Emission estimates were made assuming that the mined coal would have an energy content of 11,280 British Thermal Units (BTU)/lb, for a total of 2.69 x 10^9 mmBTU.

[4] Assumes the coal is burned over a 20-year period.

[5] Greenhouse gases.

Table 8.2 Estimated Annual CO_2 Emissions[1] for the No Action Alternative and the Proposed Action.

Year	No Action Mine and Reclamation Operations (tons CO2/yr)	No Action Over-the-Road Haulage (tons CO2/yr)	Proposed Action Mine and Reclamation Operations (tons CO2/yr)	Transportation Option(s) 1-2 (tons CO2/yr)	3 (tons CO2/yr)	4-6 (tons CO2/yr)	7-8 (tons CO2/yr)	9 (tons CO2/yr)	10 (tons CO2/yr)
1999	224	1,007	635	10,069	0	0	0	0	0
2000	14,986	4,344	13,910	50,948	1,121	17,488	0	4,968	0
2001	21,587	8,772	19,840	105,189	2,608	40,691	0	11,560	0
2002	21,863	8,868	21,648	119,157	2,991	46,665	0	13,257	0
2003	22,398	9,051	20,588	108,609	2,702	42,154	0	11,976	0
2004	22,641	8,967	29,594	149,137	3,814	59,492	0	16,901	0
2005	22,881	9,166	29,552	26,872	4,660	10,853	0	20,653	0
2006	22,284	8,954	26,322	5,460	3,957	9,216	0	17,538	0
2007	21,551	8,508	35,366	7,432	5,929	13,806	0	26,274	0
2008	1,336	0	33,853	7,189	5,686	13,241	0	25,198	0
2009	1,427	0	38,802	8,263	6,760	15,743	0	29,960	0
2010	1,638	0	11,380	8,121	6,617	15,410	0	29,327	0
2011	1,112	0	27,806	7,035	5,531	12,882	0	24,514	0
2012	790	0	29,122	7,284	5,781	13,463	0	25,621	0
2013	0	0	28,832	7,284	5,781	13,463	0	25,621	0
2014	0	0	27,504	7,284	5,781	13,463	0	25,621	0
2015	0	0	27,504	7,284	5,781	13,463	0	25,621	0
2016	0	0	27,504	7,284	5,781	13,463	0	25,621	0
2017	0	0	27,504	7,284	5,781	13,463	0	25,621	0
2018	0	0	27,504	7,284	5,781	13,463	0	25,621	0
2019	0	0	27,504	7,284	5,781	13,463	0	25,621	0
2020	0	0	27,504	7,284	5,781	13,463	0	25,621	0
2021	0	0	1,869	0	0	0	0	0	0
2022	0	0	1,632	0	0	0	0	0	0
2023	0	0	1,475	0	0	0	0	0	0
Estimated LOM Total CO_2 Emissions	176,718	67,637	564,754	679,037	104,405	418,808	0	162,715	0

---

[1] Based on fuel consumption amounts shown in Table 4.18 in the DEIS. CO2 emissions from diesel engines were estimated using the formula CO2(lb/hr) = BSFC x hp x lf x 0.87 x 44/12 where BSFC = brake-specific fuel consumption (16/hp-hr); hp = horsepower; lf = operating engine load factor; 0.87 = the carbon fraction of diesel fuel; 44/12 = the molecular weight of CO_2 divided by the molecular weight of carbon. The emission calculations were based on the following assumptions:

Type of Vehicle	BSFC	Horsepower (hp)	Load Factor	Emissions (lb CO_2/hr)	Fuel Consumption (gallons/hr)	Emissions (lb CO_2/hr)
Haul trucks	0.367	400	0.57	267	9	27.8
Locomotives	0.367	1,800	0.63	1,328	32	41.5

APPENDIX 4

BIOLOGICAL AND CONFERENCE OPINION FOR THE CARBON BASIN COAL PROJECT

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
4000 Airport Parkway
Cheyenne, Wyoming 82001

1849•1999

ES-61411
MML/W.02/WY2434.mml (carbonbo.mod)

June 18, 1999

Memorandum

To: Kurt Kotter, Field Manager, Bureau of Land Management, Rawlins Field Office, Rawlins, Wyoming

From: Field Supervisor, Wyoming Field Office, Cheyenne, Wyoming Michael M Long

Subject: Carbon Basin Coal Project Area: Amendment to Biological Opinion

This memorandum constitutes an amendment to the June 3, 1999, Biological Opinion on the Carbon Basin Coal Project Area (Consultation Number ES-6-WY-99-F-008). The Fish and Wildlife Service received verbal communication from Brenda Vosika-Newman of the Bureau of Land Management's Rawlins Field Office on June 16, 1999, requesting Service reconsideration of Term and Condition #3 for the bald eagle in the Opinion. Specifically, Ms. Newman asked if the Term and Condition could be modified to allow the possibility of exceptions to the timing and buffer restrictions for the bald eagle.

The timing and buffer restrictions specified in bald eagle Term and Condition #3 are intended to minimize the potential for take of this species. However, under certain circumstances, mining related activities within 1 mile of an active bald eagle nest may not significantly increase the likelihood of take of bald eagles. For instance, if such activities were within 1 mile of an active bald eagle nest, but were located out of the site line from the nest, the eagles may not be disturbed to the point where take would be likely to occur. Such circumstances, however, would have to be evaluated on a case-by-case basis by the Fish and Wildlife Service, and any exception to the buffer restriction approved by the Service. Therefore, if any proposed exceptions to the buffer and timing restrictions in bald eagle Term and Condition #3 as currently written were approved in writing by the Service, it is likely that the level of incidental take that would occur from the Carbon Basin Coal Project Area would not exceed that which is anticipated in the Incidental Take Statement.

Accordingly, the following condition is substituted for bald eagle Term and Condition #3 of the Biological Opinion issued to your agency on June 3, 1999. The change from the original Term and Condition is underlined.

3. All activities and surface disturbance associated with mining or other related activities will not be permitted within 1 mile of an active bald eagle nest from February 1 until

August 15, or until the nest becomes inactive, unless prior written approval by the Fish and Wildlife Service is obtained. The Service must be notified at least 30 days prior to the proposed commencement of the activities that are proposed to occur within 1 mile of an active bald eagle nest. The notification must include a full description of the type, duration, and extent of the activity; its proximity to the active bald eagle nest; and any measures proposed to minimize possible disturbance of the nest, nestlings, and adult bald eagles.

If you have any questions about this issue, please contact Pat Deibert of this office at (307) 772-2374, ext. 26.

cc: Dir., WGFD, Cheyenne, WY
Non-game Coord., WGFD, Lander, WY

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Ecological Services
4000 Airport Parkway
Cheyenne, Wyoming 82001

RECEIVED
JUN -4 1999
BUREAU OF LAND MANAGEMENT
RAWLINS FIELD OFFICE

ES-61411
pd/W.02/wy2434/carbasbo.pd

[illegible]ne 3, 1999

To: Kurt Kotter, Field Manager, Bureau of Land Management, Rawlins Field Office, Rawlins, Wyoming

From: Mike Long, Field Supervisor, U.S. Fish and Wildlife Service, Wyoming Field Office, Cheyenne, Wyoming

Subject: Biological and Conference Opinion for the Carbon Basin Coal Project Area

This document transmits the Fish and Wildlife Service's (Service) biological opinion and conference opinion based on our review of the proposed Carbon Basin Coal Project located in Carbon County, Wyoming, and its effects on bald eagles (*Haliaeetus leucocephalus*), peregrine falcons (*Falco peregrinus*), Ute ladies'-tresses (*Spiranthes diluvialis*), species dependent on the Platte River (whooping crane (*Grus americana*), interior least tern (*Sterna antillarum*), piping plover (*Charadrius melodus*), pallid sturgeon (*Scaphirhynchus albus*), eskimo curlew (*Numenius borealis*), and western prairie fringed orchid (*Platanthera praeclara*)) and designated critical habitat for the whooping crane, and mountain plovers (*Charadius montanus*), in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). Your request for formal consultation was received on January 19, 1999.

This biological and conference opinion is based on information provided in the January, 1999 biological assessment; the August, 1998 draft environmental impact statement; the January, 1999 final environmental impact statement; a telephone conversation of November 13, 1998, with Brenda Vosika-Newman, Jon Spehar, John Johanson and Jeff Carroll, Karyn Coppinger, and Craig Kling; field investigations; and other sources of information. A complete administrative record of this consultation is on file at the Service's Wyoming Field Office, Cheyenne, Wyoming.

CONSULTATION HISTORY

Informal consultation on this project was initiated with review of the August 20, 1998, biological assessment, prepared by TRC Mariah Associates, Inc. for the Bureau of Land Management (Bureau). In a letter dated October, 5, 1998, the Service informed the Bureau that we did not concur with the finding of not likely to adversely affect for the bald eagle, peregrine falcon, mountain plover, threatened plant species, and species dependent on the Platte River system.

The Service did concur with the decision that the proposed actions were not likely to adversely affect the black-footed ferret (*Mustela nigripes*) or swift fox (*Vulpes velox*). A conference call was held on November 13, 1998, with Brenda Vosicka-Newman, Jon Spehar, John Johnson and Jeff Carroll of the Bureau, Karyn Coppinger and Craig Kling of TRC Mariah Associates, Inc., and Mary Jennings, Pat Deibert and Mike Long of the Service to discuss our concerns with the original biological assessment. During that call, the Service suggested the Bureau initiate formal consultation on this project, based on the possibility of take of bald eagles, peregrine falcons, mountain plover, Ute ladies'-tresses, and depletions to the North Platte River as a result of direct impacts and interrelated and interdependent activities.

This biological opinion addresses only the potential effects of the proposed action on the bald eagle, peregrine falcon, Ute ladies'-tresses, species dependent on the Platte River (whooping crane, pallid sturgeon, interior least tern, piping plover, eskimo curlew, and western prairie fringed orchid) and the mountain plover. The Service previously concurred with the Bureau's assessment that the proposed project is not likely to adversely affect the black-footed ferret or the swift fox in a letter dated October 5, 1998.

BIOLOGICAL AND CONFERENCE OPINION

This biological and conference opinion is based on information regarding direct, indirect, and cumulative effects; conditions forming the environmental baseline; and the species' ecological status. The Service's biological opinion is that the direct and indirect effects associated with the proposed project are likely to adversely affect bald eagles, peregrine falcons, and Ute ladies'-tresses.

It has been determined the proposed action, constitutes a new project which will result in an annual depletion of 14 acre-feet (af) to both the central and lower reaches of the Platte River. Since 1978, the Service has consistently taken the position in its section 7 consultations that Federal agency actions resulting in water depletions to the Platte River system are likely to jeopardize the continued existence of federally-listed threatened or endangered species dependent on the Platte River and adversely modify or destroy designated critical habitat for the whooping crane. Consequently, the Service has adopted a jeopardy standard for all such actions, thereby triggering formal section 7 consultation. In light of this, it is the Service's biological opinion is that the direct and indirect effects of the proposed action are likely to jeopardize the continued existence of the whooping crane, least tern, piping plover, and pallid sturgeon and adversely modify designated critical habitat for the whooping crane downstream in Nebraska. The proposed action is not likely to jeopardize the continued existence of the Eskimo curlew or western prairie fringed orchid downstream in Nebraska.

The Services' conference opinion is that the direct and indirect effects associates with the proposed project are not likely to jeopardize the mountain plover.

DESCRIPTION OF THE PROPOSED ACTION

The proposed action is to issue a federal coal lease for surface and underground minable coal, which would allow extraction of coal reserves. Two mines are proposed, one for surface-minable coal and one for underground-minable coal, and a mining company has been selected for this extraction. Under the proposed action, the project area encompasses 18,360 acres, with approximately 5,235 acres to be directly affected by the Bureau's permitting action. The project area also encompasses several sections of private lands, with private or State minerals, which will also be mined. Seventy-nine percent of the mineral is private. Mining may occur on private lands within the project area under the no action alternative, resulting in 3,270 acres of disturbance within the project area. Under this scenario, the Bureau would issue right-of-ways for coal extraction on private lands. Mine development would begin in 1999, with surface mining beginning in 2000.

A detailed description of the proposed action, along with alternatives, is provided in National Environmental Policy Act (NEPA) documentation for this project (Bureau of Land Management 1998a; Bureau of Land Management 1998b; Bureau of Land Management 1999a; Bureau of Land Management 1999b).

The Service has determined the action area to include the coal lease area, any associated transportation corridors, any adjacent areas within the habitat of nesting bald eagle and mountain plovers on and near the coal lease, and the North Platte and Platte Rivers downstream of the project area to Chapman, Nebraska. Depletions from the North Platte River system may affect species reliant on habitats associated with the central Platte River in Nebraska. The status of these species and the importance to them of habitats associated with the Platte River in Nebraska is thoroughly reviewed in the Service's biological opinion of June 13, 1996 (Appendix A).

STATUS OF THE SPECIES

Listed Species

Bald Eagle

The bald eagle was listed as an endangered species in 1978. The primary cause of population decline was impaired reproduction caused by accumulation of pesticides ingested from contaminated prey. In addition, the Northern States Bald Eagle Recovery Plan identified loss of habitat, with resultant increased land development and human activity as the "most serious negative factor" affecting the bald eagle (U.S. Fish and Wildlife Service 1983). Since the banning of DDT in 1972, bald eagle populations and number of occupied nesting territories have increased throughout much of the United States. As a result, the Service reclassified the bald eagle from endangered to threatened throughout its range in the lower 48 states on July 12, 1995 (60 CFR 36000). However, bald eagles are still vulnerable to other impacts resulting from habitat loss and land development.

Bald eagles occur year-round in Wyoming. Wintering bald eagles generally occur in areas with open water on large water bodies and near concentrations of winter ungulates, waterfowl and/or fish (U.S. Department of Interior 1986, Greater Yellowstone Ecosystem Bald Eagle Working Group 1983). Freedom from human disturbance is an important component of wintering habitat (Detrich 1978, Fitzner and Hanson 1979). Statewide surveys for nesting bald eagles were initiated in Wyoming in 1978 (Wyoming Game and Fish Department 1996). The Wyoming population has been increasing, and in1994, 70 pairs attempted nesting, with a resultant 67 fledglings (Wyoming Game and Fish Department 1996). The greatest nesting concentration occurs in the Greater Yellowstone area. However, significant numbers of breeding pairs also occur in Carbon County (Wyoming Game and Fish Department 1996), primarily associated with the North Platte River and its tributaries.

Peregrine Falcon

The peregrine falcon was listed as an endangered species in 1973. The primary cause of population declines was the widespread use of pesticides, particularly DDT. The American peregrine falcon recovery plan also identifies collisions with powerlines, fences, and automobiles, as well as electrocution as mortality factors for this species (U.S. Fish and Wildlife Service 1984). Peregrine falcons are neotropical migrants and generally arrive on nesting territories in early April. Adults and young birds can remain in the general area of nesting until migrating south in September or October. Nesting habitat is generally associated with sheer rock cliff faces. Preferred sites are those in close proximity to suitable foraging habitat such as wetlands, open waters, open meadows, rivers or crop lands that attract abundant bird life. Peregrines are opportunistic feeders and prey on a large variety of smaller bird species.

Surveys conducted in Wyoming from 1977 through 1980 failed to identify any nesting pairs in the State (Wyoming Game and Fish Department 1996). In 1980, an active peregrine falcon re-introduction effort was initiated, with over 325 birds introduced by 1995. The first successful nest attempt was documented in 1984 (Wyoming and Game Fish Department 1996). In 1995, 32 nesting pairs were recorded (Wyoming Game and Fish Department 1996).

Ute ladies'-tresses

Ute ladies'-tresses is a perennial, terrestrial orchid with stems 2 to 5 dm tall, narrow leaves, and flowers consisting of few to many small white or ivory flowers clustered into a spike arrangement at the top of the stem. It blooms from late July through August, however, depending on location and climatic conditions, orchids may bloom in early July or still be in flower as late as early October. The Ute ladies'-tresses is endemic to moist soils near wetland meadows, springs, lakes, and perennial streams. It occurs generally in alluvial substrates along riparian edges, gravel bars, old oxbows, and moist to wet meadows at elevations from 4,200 to 7,000 feet. The orchid colonizes early successional riparian habitats such as point bars, sand bars, and low lying gravelly, sandy, or cobbly edges, persisting in those areas where the hydrology provides continual dampness in the root zone through the growing season.

This orchid is threatened by habitat loss and modification. Small populations and low reproductive rate under natural conditions increase the threat of loss via drought, overgrazing, herbicides and other catastrophic events. Water depletions in any habitat where the plant occurs could also be a threat. In Wyoming, several populations of this plant have been identified in the southeastern corner. However, given the known distribution of this plant in surrounding states, it may be present throughout Wyoming where habitat is suitable.

Platte River Species

Whooping Crane

The whooping crane was listed as an endangered species on March 11, 1967, (58 CFR 5647), as a result of hunting and human activities which adversely altered or destroyed whooping crane habitat. The impact of pothole and prairie conversion to hay and grain production made nearly all of the original range unsuitable for whooping cranes. Disruptive practices included draining, fencing, plowing, sowing, cultivation, harvesting and all human activity associated with these operations (U.S. Fish and Wildlife Service 1986). In the specific case of the Platte River, water projects appreciably reduced whooping crane habitat by adversely altering the dynamics of the river (Federal Energy Regulatory Commission 1975). The low reproductive potential of the whooping crane probably makes it particularly susceptible to such impacts.

Whooping cranes are diurnal migrants and make regular stops to feed and rest between flights. The importance of this migrational habitat to the survival of whooping cranes is recognized by the designation of critical habitat by the Department of the Interior (50 C.F.R. 17.95). Congress declared that a purpose of the Act was "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved." Congress provided a specific mechanism for protecting habitat of endangered species by including designation of "critical habitat" under the listing actions authorized by Section 4(a)(3) of the Act. The Platte River is designated critical habitat for migrating whooping cranes, and habitat modification is considered a mortality factor (U.S. Fish and Wildlife Service 1986). Consequently, the Service believes that destruction or adverse modification of whooping crane critical habitat would have a direct, adverse impact on crane survival and recovery.

The designated critical habitat for the whooping crane along the Platte River is a 3-mile wide, 56-mile long segment between Lexington and Denman, Nebraska. The central Platte River valley is underlain by an unconfined, shallow, alluvial aquifer (Hurr 1983). The water table is generally about 2 to 6 feet below the land surface, but may intersect the ground surface in depressed areas. River stage has a dominant influence on groundwater levels, and depth to groundwater varies in association with stage and discharge of the Platte (Hurr 1983, Henzey and Wesche 1993). Changes in river stage rapidly affects groundwater levels in the wet meadows adjacent to the river channel. Seasonal pulse flows during February and March, and during May and June are likely to be most important in maintaining wet meadows (U.S. Fish and Wildlife Service 1993). Reduced frequency of high river flows reduces the frequence of soil saturation. This in turn encourages land leveling and conversion of wet meadows to intensive agricultural production and other uses. Whooping crane use of the Platte River is dependent upon the maintenance of suitable open channels and suitable river flows.

Interior least tern

The interior least tern was listed as an endangered species on May 28, 1985 (50 CFR 21792). The tern is migratory and historically bred along the Mississippi, Red and Rio Grande River systems and rivers of central Texas. The breeding range extended from Texas to Montana and from eastern Colorado and New Mexico to southern Indiana. Today, terns occupy scattered remnants of their former range where they nest on sparsely vegetated riverine sand bars, sand and gravel pits, diked fields, and reservoir shorelines. Over 90 percent of terns nest on riverine sandbars.

There are currently about 7,000 terns widely scattered across the interior of the United States. Along the Platte River, Nebraska, terns nest on sandbars and at sand and gravel pits from the Missouri River to North Platte, Nebraska. Terns are long lived, and nesting habitats are ephemeral in quality and abundance. Therefore, productivity varies from year to year. Tern populations could probably be maintained if fledgling success is periodically high (Mertz 1971, Caswell 1982). The implications for management are to maintain as many habitat opportunities as possible for nesting terns. For the Platte River, maintenance of as much riverine habitat as possible is necessary to maintain nesting opportunities.

Channelization, irrigation and construction of reservoirs and pools have contributed to the elimination of much of the tern sandbar nesting habitat in the Platte River System. Continuing water depletions reduce the width and/or depth of water surrounding nest sites and this may increase predation and human disturbance. Increased depletions also permit vegetation encroachment into nesting areas. Extreme depletions may dewater river reaches sufficiently to kill small fishes, the tern's principle food (Dinan 1992). Water depletions in the Platte River basin have reduced annual instream flow volumes by nearly 70 percent (Williams 1978).

The loss of open river channel has been greatest along the Platte from the confluence of the North Platte and South Platte rivers to Lexington, Nebraska (Sidle et al. 1989). Terns no longer nest along this reach of the river except at a few sand pits. The recovery plan for the tern calls for maintenance of the distribution and range of the species, protection of essential habitat and restoration of nesting habitat (U.S. Fish and Wildlife Service 1990). Essential habitat along the Platte River refers to sandbars in the river channel.

Piping plover

The piping plover was listed as a threatened species on December 11, 1985 (50 CFR 50733). The current range for the plover on the Great Plains extends from alkali wetlands in southeastern Alberta through southern Saskatchewan and Manitoba, to Lake of the Woods in southwestern Ontario and northwestern Minnesota; south along major prairie rivers, including the North Platte; reservoirs in southeastern Colorado; and alkali wetlands in northeastern Montana, North Dakota and South Dakota. Currently, plovers are widely distributed in small populations across their breeding range. The majority of adults are found in the Great Plains. In 1991, 398 piping plovers were censussed in Nebraska. This total represents 11 percent of the Great Plains population (Canada and U.S.) and 19% of the U.S. Great Plains population.

Plovers nest on sparsely vegetated sandbars, sand pits and reservoir shorelines. Nesting habitats on the Platte, Niobrara, and Missouri Rivers are typically dry sandbars located midstream in wide, open channel beds, and with less than 25% vegetative cover (Faanes 1983, Schwalbach 1988, Ziewitz et al. 1992). These conditions are nearly identical to habitats used by the interior least tern and provide the essential requirements of wide horizontal visibility, protection from terrestrial predators, isolation from human disturbance, and sufficient protection from rises in river levels. Open, wet, sandy areas provide feeding habitat for plovers on the river systems and throughout most of the bird's nesting range. Plovers forage for invertebrates at the substrate surface. Foraging areas include the nesting island as well as adjacent sandbar flats.

A lack of food can be critical for plovers. Plover chick mortality is correlated with reduced growth rates, potentially a result of reduced food availability. During the breeding season, energy demands on shorebirds are typically higher than energy intake rates, and even on the best of foraging habitats, breeding shorebirds may not be able to forage efficiently enough to meet those demands. Further loss of riverine foraging habitat could have adverse consequences for plovers on the central Platte River.

Channelization, irrigation and construction of reservoirs and pools have contributed to the elimination of much of the plover sandbar nesting habitat in the Platte River System. Continuing water depletions reduce the width and/or depth of water surrounding nest sites and this may increase predation and human disturbance. Water depletions in the Platte River basin have reduced annual instream flow volumes by nearly 70 percent (Williams 1978). The loss of open river channel has been greatest along the Platte River from the confluence of the North Platte and South Platte Rivers to Lexington, Nebraska (Sidle et al. 1989). Plovers no longer nest along this reach of the river except at a few sand pits. The recovery plan for the plover calls for maintenance of the distribution and range of the species, protection of essential habitat and restoration of nesting habitat (U.S. Fish and Wildlife Service 1988). Essential habitat along the Platte River refers to sandbars in the river channel.

Pallid sturgeon

The pallid sturgeon was listed as an endangered species on September 6, 1990 (U.S. Fish and Wildlife Service 1990b). The species may be close to extinction (U.S. Fish and Wildlife Service 1993b). The historic range of the pallid sturgeon encompassed the Missouri River, the lower reaches of the Platte, Kansas and Yellowstone Rivers, and the Mississippi River below the confluence with the Missouri. The historic floodplain habitat of the Missouri and Mississippi Rivers served important functions for large-river fish. Floodplains were the major source of organic matter, sediments, and woody debris for the main stem of the rivers under naturally fluctuating flow regimes, especially when flood flows crested the river banks. The transition zone between the vegetated floodplain and the main channel included habitats with varied depths described as chutes, sloughs or side channels. These areas provided valuable diversity to the fish habitat and probably served as nursery and feeding areas for many aquatic species (Funk and Robinson 1974).

Destroyed and altered habitats are believed to be the primary cause of adverse effects on reproduction, growth and survival of the pallid sturgeon, as well as other fish species native to the Missouri, Platte and Mississippi Rivers. Recovery of the pallid sturgeon is unlikely to be successful without restoring the critical portions of morphology, hydrology, temperature regimes and sediment/organic matter transport of the rivers that provide the life requisites for the pallid sturgeon (U.S. Fish and Wildlife Service 1993b).

Much of the Platte River system was probably within the historic range of the large-river fish species of the Missouri River system before water development occurred. Of the 17 occurrences of pallid sturgeon reported in the lower Missouri River basin in Nebraska since 1980, 8 are from the Platte River or the Missouri River near the Platte River confluence. Recent occurrences of pallid sturgeon in the Platte River are reported as far upstream as the confluence with the Elkhorn River. Spring flows may be particularly important for the pallid sturgeon in the Platte River. Springs flows of the central Platte have greatly declined since the early 1900s (Williams 1978, Eschner et al. 1983).

Eskimo curlew

The Eskimo curlew (curlew) is an endangered, medium-sized shorebird. Although once abundant throughout its range, the curlew is now among the rarest bird species in the Western Hemisphere (Faanes and Senner 1991). Market hunting and sport shooting caused significant population reductions. The decline may also have been related to habitat loss, both on the wintering grounds of the Argentine Pampas (Wetmore 1939) and at migration stops on the North American prairies. In spring in Nebraska, curlews were found on unplowed areas (Swenk 1915). Although the reasons for the curlew's continued decline are unclear, it is evident that the population has never recovered.

Most shorebird species migrate between traditional stopover areas along their routes (Myers 1983). Birds typically arrive at stopover areas with depleted fat reserves. If they are unable to replenish fat reserves they may be unable to continue migration and shifting to alternative sites is not easily accomplished. Myers (1983) characterized essential stopover areas as geographic bottle necks, at which populations could be adversely affected by the environment at those bottlenecks. Disruption of the availability of foraging habitats could produce highly negative impacts on migrating curlews.

The curlew nests on the Canadian arctic tundra of the Northwest Territories (MacFarlane 1891, Swainson and Richardson 1881). Fall migration begins in July with a southeasterly movement from the breeding grounds to a feeding and staging area on the south coast of Labrador (Townsend and Allen 1907, Coues 1861, Austin 1932, Todd 1963, Gollop et al. 1986). From Labrador the birds move over Newfoundland and Nova Scotia and over the Atlantic Ocean. There were three principle spring migration staging areas in the continental United States: 1) Galveston Island and adjacent inland areas of southeastern Texas; 2) Hall, Hamilton, Merrick and York counties, Nebraska; and 3) southeastern South Dakota on wetlands adjacent to the Missouri River near Yankton.

The curlew apparently made extensive use of wet meadow habitats while on migration through North America. About 90 percent of the wetlands in Nebraska's Rainwater Basin area, which includes the traditional curlew stopover area, have been drained. Loss of wet meadows adjacent to the Platte River has reached 97 percent of the original areal extent in some river reaches (Currier et al. 1985). The Service believes that wet meadows in Nebraska are of crucial importance to the continued existence of the curlew. Continued water development may adversely affect this species.

Western prairie fringed orchid

The western prairie fringed orchid (fringed orchid) is a smooth, erect, 2 to 4-foot tall perennial species of terrestrial and palustrine communities in the North American tallgrass prairie biome. It is most often found on unplowed, calcareous prairies and sedge meadows. The fringed orchid also occurs on wet-mesic prairies and sedge meadows along the floodplain of the Platte River. The fringed orchid was distributed historically throughout much of the western Central Lowlands and eastern Great Plains physiographic provinces of central United States (Lobeck 1957) and Interior Plains in extreme south-central Canada (Brownell 1984). Comparison of the historic and extant ranges shows that the species has apparently been extirpated in South Dakota, with significant reductions in counties of occurrence in Missouri, Iowa, southeastern Kansas and eastern Nebraska. The fringed orchid has declined significantly throughout its historical range due largely to habitat loss and degradation (Freeman and Brooks 1989). Conversion of prairies for row crops, fire suppression, haying and land development are factors which have contributed to the species decline.

The Platte River floodplain was the first large area of Nebraska converted to agriculture. Soon after settlement, irrigation and drainage of fields began changing the moisture regime in the floodplain (Wilson and Bray 1991). The past century has seen drainage, decreased river flows, and development of intensive agriculture in former wet prairies of the river valley. Consequently, little habitat remains that is suitable for the fringed orchid. An estimated 112,791 acres of wet meadow has been lost along the North Platte and Platte Rivers in Nebraska from 1938 to 1982. The Mormon Island Crane Meadows population is the only known population presently occurring along the Platte River.

Proposed Species

Mountain Plover

On February 16, 1999, the Service gave notice of a proposal to list the mountain plover as a threatened species pursuant to the Act. The mountain plover is associated with shortgrass prairie, plains, alkali flats, agricultural lands, cultivated lands, sod farms, prairie dog towns, and shrub-stepped landscapes at both breeding and wintering locales. Unlike other plovers, they are rarely associated with water. Plovers may nest on sites where vegetation is sparse or absent, or near closely cropped areas, manure piles or rocky areas. Mountain plovers occupy suitable breeding habitat in many of the Great Plains states from Canada south to Texas from late March through July. Flocks may form as early as mid-June prior to migration to wintering habitats in August through October. Wintering areas are concentrated in the Central Valley of California, Texas and Mexico. There are no wintering areas in Wyoming.

Available data indicate that population numbers of mountain plovers have declined range-wide by more than 50 percent since 1966 to fewer than 10,000 birds. Approximately 1,500 birds occur in Wyoming (U.S. Fish and Wildlife Service 1999). Identified reasons for decline include conversion of shortgrass and shrub steppe habitats, changes in range management to emphasize uniform grass cover, declines in native ungulates and burrowing animals, and population sinks created by certain agricultural practices. A final listing decision on this species should be made in February, 2000.

Limited studies have recorded nest densities of 6.4 plovers per km^2 and 12.3 plovers per km^2 in Wyoming (Wyoming Game and Fish Department 1996). These values are below the predicted 20 plovers per km^2 in good habitat in Colorado (Graul and Webster 1976). Surveys for mountain plovers conducted on the SeaWest windpower project area (located near the proposed mines) found a maximum of 33 observed individuals. The density estimate for this species ranged from 0.14 plovers per km^2 to 4.91 plovers per km^2, with a resultant estimate of the breeding population at approximately 60 individuals on the windpower project area (Western Ecosystem Technology, Inc. 1997). A previous estimate of the breeding population in this area was 51± 5 plovers (TRC Mariah Associates, Inc. 1997).

ENVIRONMENTAL BASELINE

Listed Species

Bald Eagles

There are significant numbers of breeding pairs of bald eagles in Carbon County (Wyoming Game and Fish Department 1996), primarily associated with the North Platte River and its tributaries. In 1998, there were four active bald eagle nests near the Carbon Basin Coal project area. These include a nest approximately 2.2 miles west-southwest of the project area, a nest approximately 1 mile west-southwest of the project area, a nest south of the project area on the Medicine Bow River, and a nest approximately 4 miles east of the project area (Bureau of Land Management 1999b, and references therein). There are no data on where adults from these nests are foraging. However, bald eagles have been observed during raptor surveys on Foote Creek Rim (east of the project area) and Simpson Ridge (on the western edge of the project area) for the SeaWest windpower project (TRC Mariah Associates, Inc., 1997). Bald eagles have also been observed in these areas during the winter months. There are no known nests on the project area.

On Foote Creek Rim, approximately 6 miles east of the project area, SeaWest Windpower, Inc., is constructing up to 201 wind turbines. The number of turbines constructed on this rim could reach 575 (Bureau of Land Management 1995). In addition, up to 810 wind turbines will be constructed on Simpson Ridge, which overlaps with the western edge of the Carbon Basin Coal project area (Bureau of Land Management 1995; Mike Azeka, SeaWest Inc., pers. commun.). Bald eagles have been observed using these areas, possibly for foraging. Currently, it is unknown how the construction of the wind turbines will affect bald eagle use of these areas, but the birds may choose to alter their foraging areas as a result of the presence of the wind turbines.

Up to 55 miles of new power lines are currently being erected to support the SeaWest Windpower project (Bureau of Land Management 1995). The addition of these lines increases the probability of bald eagle mortality through collision or electrocution.

Peregrine Falcons

Individual peregrine falcons have been reported hunting in and flying through the Simpson Ridge and Foote Creek Rim areas adjacent to the Carbon Basin Coal project area during surveys conducted for the SeaWest wind plant (Bureau of Land Management 1999b). Potential foraging areas include the Medicine Bow River and several ponds near the SeaWest project area. Migrating falcons may also use the Carbon Basin Coal project area for foraging.

On Foote Creek Rim, approximately 6 miles east of the project area, SeaWest Windpower, Inc., is constructing up to 201 wind turbines. The number of turbines constructed on this rim could reach 575 (Bureau of Land Management 1995). In addition, up to 810 wind turbines will be constructed on Simpson Ridge, which overlaps with the western edge of the project area (Bureau of Land Management 1995; Mike Azeka, SeaWest Inc., pers. commun.). Peregrine falcons have been observed using these areas (Bureau of Land Management 1999b). Currently, it is unknown how the construction of the wind turbines will affect peregrine falcon use of these areas, but the birds may choose to alter their foraging areas as a result of the presence of the wind turbines.

Up to 55 miles of new power lines are currently being erected to support the SeaWest Windpower project (Bureau of Land Management 1995). The addition of these lines increases the probability of peregrine falcon mortality through collision or electrocution.

Ute Ladies'-tresses

One location within the project area has been identified as potential habitat for the Ute ladies'-tresses and the Bureau has determined that surveys of this area are warranted (Bureau of Land Management 1998a). Surveys of this area in 1997 did not locate any populations of the plant (Roderick 1998). Due to the ability of this species to persist below ground for years before emerging, Roderick (1998) recommended that future surveys be conducted.

Platte River Species

Significant reductions in the amount of water in the Platte River system, as well as changes in the hydrology of that system, have resulted in several species being listed as endangered or threatened. Whooping crane use of the Platte River is dependent upon the maintenance of suitable open channels and suitable river flows. These channels and flows have been significantly impacted through water development projects. About 90 percent of the wetlands in Nebraska's Rainwater Basin area, which includes the traditional eskimo curlew stopover area, have been drained. Loss of wet meadows adjacent to the Platte River has reached 97 percent of the original areal extent in some river reaches. The Service believes that wet meadows in Nebraska are of crucial importance to the continued existence of the curlew. Channelization, irrigation and construction of reservoirs and pools have contributed to the elimination of much of the piping plover and interior least tern sandbar nesting habitat in the Platte System. Continuing water depletions reduce the width and/or depth of water surrounding nest sites and this may increase predation and human disturbance. Destroyed and altered habitats are believed to be the primary cause of adverse effects on reproduction, growth and survival of the pallid sturgeon, as well as other fish species native to the Missouri, Platte and Mississippi Rivers. Decreased river flows, and development of intensive agriculture in former wet prairies of the river valley, have resulted in the loss of suitable habitat for the fringed orchid.

Although whooping cranes, eskimo curlews, piping plovers and interior least terns may be occasional, but unlikely, migrants through the project area, none of the threatened and endangered species dependent on the Platte River system currently reside in Wyoming. However, as previously discussed, all of these species, and their habitat, can be significantly affected by any depletions to the Platte River system.

Proposed Species

Mountain Plover

Several mountain plovers have been observed within the project area and a 2-mile buffer (Bureau of Land Management 1999b). However, no formal surveys have been conducted. The Bureau has estimated that there are six breeding pairs in the north-central portion of the project area (Bureau of Land Management 1999b). One active mountain plover nest has been observed in that area (David Young, WEST, Inc., personal communication 1999). Approximately 1,189 acres of habitat suitable for mountain plover nesting occurs within the project area. Livestock grazing on the project area, which may maintain or enhance mountain plover breeding habitat, is currently permitted at 2,057 animal unit months (AUMs).

On Foote Creek Rim, approximately 6 miles east of the project area, SeaWest Windpower, Inc., is constructing up to 201 wind turbines. The number of turbines constructed on this rim could reach 575 (Bureau of Land Management 1995). Several mountain plovers have previously used the Foote Creek Rim for nesting and foraging (Bureau of Land Management 1999b).

EFFECTS OF THE ACTION

Bald Eagles

Bald eagles may be affected by the Carbon Basin Coal Project through the construction of new roads and transmission lines. The project area is within crucial winter/yearlong range for pronghorn antelope (*Antilocapra americana*), and mule deer (*Odocoileus hemionus*), and within yearlong range of elk (*Cervus elaphus*) (Bureau of Land Management 1998a). Several small mammals, as well as game birds and passerines are also common in the area. With the increased volume and frequency of vehicular traffic (up to a 1,140% increase in the project area (Bureau of Land Management 1998a)) and possibly railroad traffic in the project area under the proposed alternative, there is a high probability of increased wildlife mortality due to vehicular collisions. Currently, existing roads within the project area consist of unimproved jeep trails, with extremely limited traffic.

Bald eagles often forage on carcasses of other animals, particularly in the winter when aquatic food resources are not as readily available. Foraging may also be intensified during the nesting period while adults are feeding nestlings. If there is an increase in carcass availability as a result of collisions with vehicles and trains on the Carbon Basin project area, bald eagles may increase foraging activities on the project area. Foraging on carcasses will result in an increased chance of mortality via vehicular collision if bald eagles forage on animals killed by vehicular or rail traffic in the project area.

Bald eagles may intensify foraging efforts in the Carbon Basin Coal project area if construction of the wind turbines on the SeaWest project area discourages bald eagle use of that area. Under this scenario, there may also be an associated increase in mortality of bald eagles due to vehicular or rail collisions.

Up to 55 miles of new power lines are currently being erected to support the SeaWest Windpower project (Bureau of Land Management 1995). An additional 2 to11 miles of transmission lines will be constructed to support coal mining on the Carbon Basin Coal project area, requiring between 21 and 110 poles (Bureau of Land Management 1998a). The additional transmission lines and poles increases the probability of bald eagle mortalities as a result of electrocution and collision.

Peregrine Falcons

Due to the presence of existing and new wind turbines on the adjacent SeaWest Windpower project area, peregrine falcons may choose to alter their foraging areas. Therefore, foraging use in the Carbon Basin Coal project area may increase as a result of this displacement. However, once mining and all associated activities are initiated, foraging areas for peregrine falcons will again be reduced.

Up to 55 miles of new power lines are currently being erected to support the SeaWest Windpower project (Bureau of Land Management 1995). An additional 2 to11 miles of transmission lines will be constructed to support coal mining on the Carbon Basin Coal project area, requiring between 21 and 110 poles (Bureau of Land Management 1998a). The additional transmission lines and poles increases the probability of peregrine falcon mortalities as a result of electrocution and collision.

Ute ladies'-tresses

Due to the ability of Ute ladies'-tresses to persist below ground for years before emerging, Roderick (1998) recommended that future surveys be conducted. If the plant is present, loss of the entire population may occur if there is surface disturbance in the plant's habitat.

Platte River Species

As currently proposed, mining activities within the Carbon Basin Coal project area will result in an annual depletion of 14-acre feet from the North Platte River system per year (Bureau of Land Management 1999b). Since 1978, the Service has consistently taken the position in its section 7 consultations that Federal agency actions resulting in water depletions to the Platte River system are likely to jeopardize the continued existence of several federally-listed threatened or endangered species and adversely modify or destroy designated critical habitat for the whooping crane. Consequently, the Service has adopted a jeopardy standard for all such actions, thereby triggering formal section 7 consultation. In light of this, the Service believes that the proposed project is likely to jeopardize the continued existence of the federally-listed whooping crane, interior least tern, piping plover, and pallid sturgeon, and result in the adverse modification or destruction of designated whooping crane critical habitat. The proposed action will cause new average annual depletions to the Platte River system of 14 acre-feet. The effects of this depletion to the Platte River system and species dependent on the Platte River in Nebraska are described in the minor depletion biological opinion (Appendix A).

Proposed Species

Mountain Plover

Two hundred and six to 257 acres will be directly affected by mining and all associated activities (Bureau of Land Management 1999b). Mountain plovers may suffer direct mortality if nests, eggs, chicks or adults are killed during any mining or associated activities. Plovers will also be impacted through the loss of suitable nesting habitat, and indirectly through displacement as a result of avoiding mining activities. Mountain plovers prefer areas of low vegetation and bare ground. They are often attracted to roads for feeding (Bureau of Land Management 1999b, and references therein). Therefore, direct mortality may occur as a result of increased vehicular traffic, especially along unpaved roads with sparse vegetation (Bureau of Land Management 1999).

Under certain conditions, livestock grazing may maintain habitat for nesting mountain plovers. Removal of grazing, or changes in grazing strategies may negatively impact plovers if grass, forb and shrub heights increase to greater than 4 inches without grazing. Both Federal and private AUMs will be reduced throughout the life of the mine if mining activities are permitted. An estimate of the reduction of AUMs on Federal lands ranges from 3 to 293 (Bureau of Land Management 1998a). There are additional AUMs on private lands which would be reduced if mining is permitted. In addition, fencing for reclamation may affect availability of the area for livestock grazing. Therefore, mountain plovers may be negatively impacted from these reductions if grazing is maintaining breeding habitat in the Carbon Basin Coal project area.

Currently, it is unknown how the construction of the wind turbines at the nearby SeaWest Windpower facility will affect mountain plover use of that areas, but the birds may choose to alter their nesting and foraging areas as a result of the presence of the wind turbines. Therefore, use of the Carbon Basin Coal project area by mountain plovers may increase as a result of this displacement. However, once mining and all associated activities are initiated, the availability of foraging and nesting areas for mountain plovers will be reduced.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological and conference opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Currently, the only known future project not associated with a Federal action is the Medicine Bow Windfarm project (Bureau of Land Management 1998a). There is very little information available on this project, but presumably it could contribute to direct removal of nesting habitat for mountain plovers; increased mortality from vehicular and turbine collisions for the bald eagle, peregrine falcon and mountain plover; decreased foraging areas and habitat availability for these three species; increased probabilities of powerline electrocutions and collisions for the bald eagle, peregrine falcon, and mountain plover; and destruction of Ute ladies'-tresses.

CONCLUSION

After reviewing the current status of bald eagles, peregrine falcons, Ute ladies'-tresses, species dependent on the Platte River system, and the mountain plover, the environmental baseline for the action area, the effects of the proposed coal extraction, and the cumulative effects from windpower development, existing coal mines, oil and gas wells and associated facilities, roads, railroads, and the towns of Hanna, Elk Mountain and Medicine Bow, it is the Service's biological opinion that the Carbon Basin Coal project, as proposed, is not likely to jeopardize the continued existence of the bald eagle, peregrine falcon, Ute ladies'-tresses, or mountain plover.

Bald eagle and peregrine falcon populations have experienced a significant recovery across their range since the banning of DDT. Take from other sources, such as collisions or electrocutions, can be locally significant to these species; however, the Bureau has agreed to implement the best current knowledge and practices to in minimize these risks. Additionally, the bald eagle nests in the area are at least 1 mile or further from the proposed disturbance, thereby minimizing the possibility of "take" from mining activities.

Foraging areas for peregrine falcons are limited in the project area, and no known nesting occurs within, or near the project area. Therefore, the Service does not believe loss of individuals from the proposed action will result in the ultimate demise of these species. Recovery of Ute ladies'-tresses is focused on known populations and habitats within drainages of known populations. Although discovery of a population outside currently known areas could be significant in understanding of the species habitat requirements and distribution, loss of an isolated population, with no realistic possibility of genetic exchange with other known populations, will not likely result in jeopardy to the species.

No critical habitat has been designated for these species. Therefore, no critical habitat will be affected.

The Service's biological opinion is that the direct and indirect effects of the proposed action are likely to jeopardize the continued existence of the whooping crane, least tern, piping plover, eskimo curlew, western prairie fringed orchid, and pallid sturgeon and adversely modify designated critical habitat for the whooping crane downstream in Nebraska. However, as previously mentioned, the Service issued a biological on June 23, 1996, which provides reasonable and prudent alternatives for minor water depletions to avoid the likelihood of jeopardy to federally-listed species and adverse modification or destruction of designated critical habitat occurring along the Platte River. Those reasonable and prudent alternatives are discussed in Appendix A.

Mountain plovers are widely distributed throughout their breeding range. The Bureau has identified several areas adjacent to the proposed action which may also provide habitat for plovers. With a current population estimate of 10,000 individuals (U.S. Fish and Wildlife Service 1999), the Service's conference opinion is that the loss of some breeding habitat and potentially a few individuals within the Carbon Basin Coal project area will not jeopardize the continued existence of the mountain plover.

REASONABLE AND PRUDENT ALTERNATIVES

Regulations (50 CFR 402.02) implementing section 7 of the Act define reasonable and prudent alternatives as alternative actions, identified during formal consultation, that "(1) can be implemented in a manner consistent with the intended purpose of the action; (2) can be implemented consistent with the scope of the action agency's legal authority and jurisdiction; (3) are economically and technologically feasible; and (4) would, the Service believes, avoid the likelihood of jeopardizing the continued existence of listed species or resulting in the destruction or adverse modification of critical habitat."

An intra-Service section 7 consultation was conducted in coordination with those Federal agencies whose actions may result in minor water depletions of 25 af or less per year to the Platte River system. This led to the "minor depletion biological opinion" which provides reasonable and prudent alternatives to avoid the likelihood of jeopardy to federally-listed species (whooping crane, eskimo curlew, interior least tern, piping plover, pallid sturgeon, western prairie fringed orchid) and adverse modification or destruction of designated whooping crane critical habitat occurring along the Platte River. To satisfy the requirements of the Act, Federal action agencies and project proponents (i.e., Federal and non-Federal) are provided reasonable and prudent alternatives described in the aforementioned biological opinion (Appendix A).

As a result of informal section 7 consultation with your agency on the proposed Federal action described above, it is the Service's understanding that you intend to require the project proponent to deposit funds into a designated National Fish and Wildlife Foundation account to offset the project-related impacts to Platte River fish and wildlife resources. Therefore, it has been calculated that $3,018.84 should be deposited into the Foundation account for use in restoring Platte River habitat as described in the referenced small depletion biological opinion.

To accomplish this, the Service requests that the project proponent be instructed to mail a check in the specified amount, payable to the "National Fish and Wildlife Foundation," to the point of contact identified at the following address:

Michael M. Long
Field Supervisor
U.S. Fish and Wildlife Service
Wyoming Field Office
4000 Airport Parkway
Cheyenne, Wyoming 82001

It is further recommended that along with the check, the project proponent be advised to include a cover letter referencing the Federal action consulted on and stating that the funds are to be deposited into Account No. 92-130 and used for "the acquisition, conservation, recovery, and maintenance of habitat along the Platte River in Nebraska." The Service will forward the check to the Foundation for deposit into Account No. 92-130.

Because of this biological opinion has found jeopardy and destruction or adverse modification of critical habitat, the Bureau is required to notify the Service of its final decision on the implementation of the reasonable and prudent alternatives.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, would, kill trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Bureau of Land Management so that they become binding conditions of any grant or permit issued to the applicant, Arch of Wyoming, as appropriate, for the exemption in section 7(o)(2) to apply. The Bureau has a continuing duty to regulate the activity covered by this incidental take statement. If the Bureau (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Bureau must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement. [50 CFR 402.14(i)(3)].

Sections 7(b)(4) and 7(o)(2) of the Act generally do not apply to listed plant species. However, limited protection of listed plants from take is provided to the extent that the Act prohibits the removal and reduction to possession of Federally listed plants or the malicious damage of such plants on areas under Federal jurisdiction, or the destruction of endangered plants on non-federal areas in violation of State law or regulation or in the course of any violation of a State criminal trespass law.

AMOUNT OR EXTENT OF TAKE ANTICIPATED

Listed Species

The Service anticipates one peregrine falcon could be taken as a result of this proposed action. The incidental take is expected to be in the form of either killing by electrocution or collision as a result of the new transmission lines associated with this project, or as a result of vehicular collisions as the birds are foraging near project area roads.

The Service anticipates two bald eagles could be taken as a result of this proposed action. This incidental take is expected to be in the form of either killing by electrocution or collision as a result of the new transmissions associated with this project, or as a result of vehicular collisions as the birds are foraging near project area roads. The anticipated level of take of bald eagles due to electrocution or collisions is greater than take anticipated for peregrine falcons due to the presence of young eagles (from surrounding nests) foraging in the area. These birds may not be as experienced as older or adult birds in avoiding collision or electrocution hazards. There may also be take of one nest, or two offspring, in the form of harm to the bald eagle due to increased, long-term disturbance near established nesting sites, and the cumulative effects of greatly increased human activity in the area from the project and the from construction and operation of the adjacent windfarms.

With implementation of the reasonable and prudent alternatives, the Service does not anticipate that the proposed action will incidentally take any threatened or endangered species in Nebraska. Therefore, no incidental take is authorized.

Proposed Species

Mountain plovers require, on average, approximately 160 acres to successfully raise their broods to fledging (Fritz Knopf, Biological Research Division, U.S. Geological Service, pers. commun. 1999). However, many plovers pairs may use the same areas for nesting and brood rearing.

Based on the Bureau's estimate of 1,189 acres of suitable habitat within the Carbon Basin Coal project area (Bureau of Land Management 1999b), and assuming only 1 pair per 160 acres, up to 8 plover pairs, plus their broods may be present on the project area. Given that plovers typically produce 2 clutches of 3 chicks per breeding season, as many as 64 individual birds may be present on the project area. The actual amount of suitable plover habitat predicted to be directly impacted is 257 acres (Bureau of Land Management 1999b), or an area sufficient to support 2 mountain plover pairs (and 12 offspring) under the 1 pair/160 acre assumption.

Take of mountain plovers may be direct (lethal) or in the form of "harm" through the loss of reproductive habitat. Direct take would be in the form of death through collision or destruction and/or abandonment of a nest. If all terms and conditions described below are implemented, the Service anticipates one mountain plover may be taken as a result of the proposed action. This incidental take is expected to be in the form of direct mortality from collision with vehicles or trains. If all terms and conditions described below are implemented, the Service anticipates that no plovers will be taken through harm as a result of loss of nesting habitat.

There may also be take in the form of harm due to increased, long-term disturbance near established nesting sites, loss of nesting habitat, and the cumulative effects of greatly increased human activity in the area from construction and operation of the adjacent windfarms. However, the quantity of this harm cannot be quantified, and is not covered in the incidental take statement.

EFFECT OF TAKE

Listed Species

In the accompanying biological opinion, the Service determined that this level of anticipated take of bald eagles, peregrine falcons and mountain plovers is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

In the accompanying biological opinion, the Service determined that the level of anticipated take for species associated with the Platte River ecosystem is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat when the reasonable and prudent alternatives are implemented.

Proposed Species

In the accompanying conference opinion, the Service determined that this level of anticipated take of mountain plovers is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take of bald eagles, peregrine falcons and mountain plovers.

Listed Species

Bald Eagle

- All efforts must be made to minimize the chance of electrocution Additionally, all efforts must be made to minimize the chance of collision with all transmission lines, or other wire structures potentially within the flight path of bald eagles.

- All efforts should be made to avoid disruption of nesting activities as a result of mining and associated activities. Current nesting activities should be monitored to determine if "take" is occurring in the form of "harm."

- Any habitat suitable for bald eagle roosting or nesting should be protected where practicable. If nesting and /or roosting habitat is removed or otherwise impacted by mining or associated activities, this habitat should be replaced, to minimize future take of this species.

- All efforts should be made to reduce the possibility of train or vehicular collision with bald eagles, including reducing the amount of carrion present as a result of train or vehicular collision to discourage foraging by bald eagles on these items.

Peregrine Falcon

- All efforts must be made to minimize the chance of electrocution Additionally, all efforts must be made to minimize the chance of collision with all transmission lines, or other wire structures potentially within the flight path of peregrine falcons.

- All efforts should be made to avoid disruption of nesting activities as a result of mining and associated activities.

- All efforts should be made to reduce the possibility of train or vehicular collision with peregrine falcons.

Proposed Species

The prohibitions against taking the species found in section 9 of the Act do not apply until the species is listed. However, the Service advises the Bureau to consider implementing the following reasonable and prudent measures. If this conference opinion is adopted as a biological opinion following a listing or designation, these measures, with their implementing terms and conditions will be nondiscretionary.

Mountain Plovers

- All efforts should be made to determine where mountain plovers are nesting within the project area. Additionally, if nests are located, all efforts should be made to avoid disruption of nesting activities as a result of mining and associated activities. Nests should be monitored to determine impacts of mining and associated activities on local plover populations, so that additional minimization measures can be applied, if necessary.

- All efforts should be made to avoid suitable nesting and brood-rearing habitat for mountain plovers within the project area. If suitable habitat is disturbed, the area should be reclaimed to encourage future plover use, and thereby reduce future take.

- All efforts should be made to reduce the possibility of train or vehicular collision with mountain plovers.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the Bureau of Land Management must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

All Species

- Where practical, an attempt should made to salvage any individuals taken as a result of the proposed action. Within 24 hours of finding a dead bald eagle, peregrine falcon or mountain plover, both the Service's Wyoming Field Office in Cheyenne and Law Enforcement Office in Casper must be notified of the mortality. These individuals should be stored by freezing, and submitted to the Law Enforcement agent in Casper as soon as possible after discovery.

- The Bureau must implement a tracking system to monitor take for all species associated with the proposed action. A summary of all take, if any, should be submitted to the Service's Wyoming Field Office on an annual basis.

Listed Species

Bald Eagle

1. All transmission lines associated with the project must be designed to minimize electrocution hazard using the recommendations of the Avian Power Line Interaction Committee (1996).

2. All transmission lines, guy wires, or other wires used to support equipment on the project area must be designed to minimize the chance for avian collisions, using the recommendations of the Avian Power Line Interaction Committee (1994).

3. All activities and surface disturbance associated with mining or other related activities will not be permitted within 1 mile of an active bald eagle nest from February 1 until August 15, or until the nest becomes inactive.

4. All mature trees removed as a result of mining must be replaced. If trees are anticipated for removal several years in the future, replacement trees must be established within 1 year of initiating actual mining activities to allow these trees to grow and possibly become useful as bald eagle roosting or nesting habitat prior to the removal of existing trees.

5. Nest success and productivity of the existing four bald eagle nests must be monitored and reported to the Service, Wyoming Field Office annually. The Bureau may transfer this responsibility to the successful mining applicant.

6. Speed limits on all roads within the project area shall not exceed 35 miles per hour to minimize the chance of collision with a bald eagle, or other wildlife or domestic livestock. This speed limit must be strictly enforced. Likewise, train speed limits within the project area shall not exceed 20 miles per hour. This speed limit must be strictly enforced.

Peregrine Falcon

7. All transmission lines associated with the project must be designed to minimize electrocution hazard using the recommendations of the Avian Power Line Interaction Committee (1996).

8. All transmission lines, guy wires, or other wires used to support equipment on the project area must be designed to minimize the chance for avian collisions, using the recommendations of the Avian Power Line Interaction Committee (1994).

9. All activities and surface disturbance associated with mining or other related activities will not be permitted within 1 mile of an active peregrine falcon nest from March 1 until August 15, or until the nest becomes inactive.

10. Speed limits on all roads within the project area must not exceed 35 miles per hour to minimize the chance of collision with a peregrine falcon, or other wildlife or domestic livestock. This speed limit must be strictly enforced. Likewise, train speed limits within the project area shall not exceed 20 miles per hour. This speed limit must be strictly enforced.

Proposed Species

Mountain Plovers

11. Surveys for mountain plovers within suitable habitat of the project area must be conducted on an annual basis following survey guidelines provide by the Service. These surveys must be conducted by a qualified wildlife biologist. Determination of suitable habitat by the Bureau or the successful mining applicant must have the concurrence of the Service.

12. The results of the above surveys must be compared with the mine plan to determine if any surface disturbance activities will affect occupied nesting habitat for the mountain plover. Where practicable, these activities must be modified to avoid these habitats (such a through road realignment, etc.). The Bureau may transfer this responsibility to the successful mining applicant.

13. If removal of mountain plover nesting habitat is unavoidable, take associated with that loss must be minimized by creating additional nesting habitat prior to the removal of the existing habitat. This creation may take the form of prescribed burning, intensified grazing, or other vegetation reduction methods. However, this habitat creation should not compromise the ability of another species to survive within the area (i.e. burning sage grouse nesting habitat, crucial pronghorn antelope habitat, etc.). For the effectiveness of this measure to be maximized, habitat creation must occur within the Carbon Basin Coal project area, preferably within 2 miles of the existing habitat, to increase the probability of plovers finding the area.

14. To minimize the chance for "take" of a nest, areas proposed for any surface disturbance from April 10 through July 10, within suitable habitat for mountain plovers, must be surveyed for nesting plovers within 1 week prior to initiating the disturbance.

15. If an active mountain plover nest is located, all activities associated with mining within 200 m of the nest must cease until the young hatch and leave, or until the nest is no longer active.

16. Nest success and productivity of all mountain plover nests found within the project area should be monitored and reported to the Service, Wyoming Field Office annually. The Bureau may transfer this responsibility to the mining company.

17. If nesting habitat is disturbed by any mining or associated activity, those areas must be reclaimed to original conditions (topography, vegetation, hydrology, etc.) after the completion of disturbance in the area. Data collected, as required for a State mining permit, will be used to determine the topographical, vegetative and hydrological conditions of the area pre-disturbance.

18. Speed limits on all roads within the project area must not exceed 35 miles per hour to minimize the chance of collision with a mountain plover, or other wildlife or domestic livestock. This speed limit must be strictly enforced. Likewise, train speed limits within the project area shall not exceed 20 miles per hour. This speed limit must be strictly enforced.

The Service believes that no more than 2 bald eagles, 1 bald eagle nest with 2 nestlings, 1 peregrine falcon, and 1 mountain plover will be incidentally taken, through direct take, as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring re-initiation of consultation and review of the reasonable and prudent measures provided. The Bureau must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification on the reasonable and prudent measures.

COORDINATION OF INCIDENTAL TAKE STATEMENTS WITH OTHER LAWS, REGULATIONS, AND POLICIES

The Fish and Wildlife Service will not refer the incidental take of mountain plovers, peregrine falcons or bald eagles for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. 703-712), or the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. 668-668d), if such take is in compliance with the terms and conditions (including 1-3, 6-10, 12-15, and 18) specified herein.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

- All existing powerlines, or other transmission lines within the foraging areas of bald eagles, peregrine falcons and mountain plovers using the Carbon Basin Coal project area and surrounding habitat should be re-constructed to the standards of the Avian Power Line Interaction Committee (1994, 1996), if they do not already meet those standards. All transmission lines should be located away from likely travel corridors, such as riparian areas, and foraging areas for bald eagles, peregrine falcons, and mountain plovers.

- Speed limits for railroad traffic should be limited to 20 miles per hour along the spur constructed for mining activity, from the mine load-out area to connection of the spur with the main railroad line.

- Cottonwood regeneration along the Medicine Bow River drainage should be encouraged through reduction, modification and/or removal of domestic grazing, recreational use, or mineral extraction, if those activities are identified as being a cause of lack of regeneration.

- Surveys of the entire Carbon Basin Coal project area should be conducted for mountain plovers (both nesting and brood rearing activities), to provide an estimate of population numbers in the area, availability of unoccupied suitable habitat, and impacts of mining and electrical power generation on this species.

- Surveys of all suitable habitat within the entire Carbon Basin Coal project area should be conducted for Ute ladies'-tresses to determine the status of this species in this area.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations, and receipt of any report developed as a result of their implementation.

RE-INITIATION NOTICE

This concludes formal consultation and conferencing on the action outlined in the NEPA documents for this project, and the biological assessment from the Bureau submitted to the Service on January 19, 1999 for bald eagles, peregrine falcons, Ute ladies'-tresses, and mountain plovers. As provided in 50 CFR 402.16, re-initiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) that agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending re-initiation.

Following receipt of the project proponent's check for depletions to the North Platte River, the Service will notify you that the specified funds have been received, and formal consultation on the proposed Federal action on whooping cranes, piping plovers, interior least terns, eskimo curlews, pallid sturgeon and western prairie fringed orchid described above will be concluded. Any need for reinitiation of formal consultation on this proposed action for Platte River species is outlined in the CONCLUSION section of the referenced small depletion biological opinion.

You may ask the Service to confirm the conference opinion as a biological opinion issued through formal consultation if the mountain plover is designated as threatened. The request must be in writing. If the Service reviews the proposed action and finds that there have been no significant changes in the action as planned or in the information used during the conference, the Service will confirm the conference opinion as the biological opinion on the project and no further section 7 consultation will be necessary.

After listing of the mountain plover as threatened and any subsequent adoption of this conference opinion, the Federal agency shall request reinitiation of consultation if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect the species or critical habitat in a manner or to an extent not considered in this conference opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the species or critical habitat that was not considered in this conference opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

The incidental take statement provided in this conference opinion does not become effective until the species is listed and the conference opinion is adopted as the biological opinion issued through formal consultation. At that time, the project will be reviewed to determine whether any take of the mountain plover has occurred. Modifications of the opinion and incidental take statement may be appropriate to reflect that take. No take of the mountain plover may occur between the listing of the mountain plover and the adoption of the conference opinion through formal consultation, or the completion of a subsequent formal consultation.

The Service encourages the Bureau to maintain a Federal nexus for the Carbon Basin Coal project so that consultation can be reinitiated, if necessary. This can be done by making the terms of the biological opinion a condition of the lease.

LITERATURE CITED

Austin, O.L. 1932. The birds of Newfoundland, Labrador. Memoirs Nuttall Ornithological Club. Cambridge, MA.

Avian Power Line Interaction Committee. 1994. Mitigating bird collisions with power lines: The state of the art in 1994. Edison Electric Institute. Washington, D.C.

Avian Power Line Interaction Committee. 1996. Suggested practices for raptor protection on power lines - the state of the art in 1996. Edison Electric Institute. Washington, D.C.

Brownell, V.R. 1984. Status report on the prairie white fringed orchid (*Platanthera leucophaea*): a rare species in Canada. Unpublished report. 39 pp.

Bureau of Land Management. 1995. Draft Kenetech/Pacificorp windpower project environmental impact statement. Bureau of Land Management, Rawlins District, Rawlins, WY.

Bureau of Land Management. 1998a. Draft Carbon Basin Coal Project environmental impact statement. Bureau of Land Management, Rawlins District, Rawlins, WY.

Bureau of Land Management. 1998b. Biological assessment for the Carbon Basin Coal Project. Bureau of Land Management, Rawlins District, Rawlins, WY. 48 pp.

Bureau of Land Management. 1999a. Final Carbon Basin Coal Project environmental impact statement. Bureau of Land Management, Rawlins District, Rawlins, WY.

Bureau of Land Management. 1999b. Biological assessment for the Carbon Basin coal project. Bureau of Land Management, Rawlins District, Rawlins, WY. 54 pp.

Caswell, H. 1982. Life history theory and the equilibrium status of populations. Am. Nat. 120: 317-339.

Coues, E. 1861. Notes on the ornithology of Labrador. Proceedings Academy of Natural Sciences, Philadelphia. 13:215-257.

Currier, P.J., G.R. Lingle and J.G. VanDerwalker. 1985. Migratory bird habitat on the Platte and North Platte rivers in Nebraska. The Platte River Whooping Crane Critical Habitat Maintenance Trust, Grand Island, NE. 177 pp.

Detrich, P.J. 1978. Bald eagle winter habitat study. Shasta, Trinity and Tehama Counties, California. U.S. Dept. Agric., Forest Service, Redding, CA. 37 pp.

Dinan, K.F. 1992. Application of the stream network temperature model to the Central Platte River, Nebraska. M.S. Thesis. Department of Fish and Wildlife, Colorado State University, Fort Collins, CO.

Eschner, T.R., R.F. Hadley and K.D. Crowley. 1983. Hydrologic and morphologic changes in channels of the Platte River Basin in Colorado, Wyoming and Nebraska: a historical perspective. In Hydrologic and Geomorphic Studies of the Platte River Basin. U.S. Geological Survey Professional Paper 1277-A, U.S. Government Printing Office, Washington, D.C.

Faanes, C.A. 1983. Aspects of the nesting ecology of least terns and piping plovers in central Nebraska. Prairie Nat. 15:145-154.

Faanes, C.A. and S. Senner. 1991. Status of Eskimo curlew in North America. American Birds 45:237-239.

Federal Energy Regulatory Commission. 1975. Biological Assessment of the Kingsley Hydroelectric Project, NE.

Fitzner, R.E. and W.C. Hanson. 1979. A congregation of wintering bald eagles. Condor 81:311-313.

Freeman, C.C. and R.E. Brooks. 1989. Status report on *Platanthera praeclara* Sheviak and Bowles (Western prairie fringed orchid) in Kansas, Nebraska and South Dakota.

Funk, J.L. and J.W. Robinson. 1974. Changes in the channel of the lower Missouri River and effects on fish and wildlife. Missouri Department of Conservation, Aquatic Series 11, Jefferson City, MO.

Gollop, J.B., T.W. Barry and E.H. Iverson. 1986. Eskimo curlew: a vanishing species? Saskatchewan Natural History society, Special Publication 17.

Graul, W.D. and L.E. Webster 1976. Breeding status of the mountain plover. Condor 78(2):265-267.

Greater Yellowstone Ecosystem Bald Eagle Working Group. 1983. A bald eagle management plan for the Greater Yellowstone Ecosystem. Wyoming Game and Fish Department, Cheyenne, WY. 84 pp.

Henzey, R.J. and T.A. Wesche. 1993. Hydrologic components influencing the condition of wet meadows along the Platte River, Nebraska. Report to the Nebraska Game and Parks Commission, Lincoln, NE. Habitech Inc., Laramie, WY. 84 pp

75

Hurr, R.T. 1983. Groundwater hydrology of the Mormon Island Crane Meadows Wildlife Area near Grand Island, Hall County, Nebraska. Pages H1-H12, in Hydrologic and Geomorphical Studies of the Platte River Basin, U.S. Geological Survey Professional Paper 1277, Washington, D.C.

Lobeck, A.K. 1957. Physiographic diagram of the United States. The Geographical Press, Hamond, Inc. Maplewood, NJ. 8 pp.

MacFarlane, R. 1891. Notes on and list of birds collected in Arctic America, 1861-1866. Proceedings U.S. National Museum 14:413-446.

Mertz, D.B. 1971. Life history phenomena and increasing and decreasing populations. Pages 361 - 399 in G.P. Patil, E.C. Pielou, and W.E. Waters, eds. Statistical Ecology, vol. 2. Pennsylvania State University Press, University Park.

Myers, J.P.1983. Conservation of migrating shorebirds: staging areas, geographic bottlenecks and regional movements. American Birds 37:23-25.

Roderick, A.J. 1998. *Spiranthes diluvialis*: Negative findings and potential habitat within the Sand Creek and Medicine Bow River drainages. Bureau of Land Management, Cheyenne, WY. 4 pp.

Schwalbach , M.J. 1988. Conservation of least terns and piping plovers along the Missouri River and its major western tributaries in South Dakota. M.S. Thesis. South Dakota State University, Brookings, SD.

Sidle, J.G., E.D. Miller and P.J. Currier. 1989. Changing habitats in the Platte River valley of Nebraska. Prairie Nat. 21:91-104.

Swainson, W. and J. Richardson 1881. Birds (Part II). Fauna Boreali-Americana. John Murray, London.

Swenk, M.H. 1915. The Eskimo curlew and its disappearance. Proceedings of the Nebraska Ornithologist's Union 6:25-44.

TRC Mariah Associates, Inc. 1997. Final baseline avian studies for the proposed SeaWest Energy Corporation Wyoming wind plant. TRC Mariah Associates, Inc., Laramie, WY.

Todd, W.E.C. 1963. Birds of the Labrador Peninsula and adjacent areas. University of Toronto Press.

Townsend, C.W. and G.M. Allen. 1907. Birds of Labrador. Proceedings Boston Society of Natural History 33:277-428.

U. S. Department of Interior. 1986. Montana bald eagle management plan. BLM-MT-GI-001-4352. 61 pp.

U.S. Fish and Wildlife Service. 1983. Northern Stated bald eagle recovery plan. U.S. Fish and Wildlife Service, Denver, CO. 76 pp plus appendices.

U.S. Fish and Wildlife Service. 1984. American peregrine falcon, Rocky Mountain/Southwest population recovery plan. U.S. Fish and Wildlife Service, Denver, CO. 104 pp.

U.S. Fish and Wildlife Service. 1986. Whooping crane recovery plan. U.S. Fish and Wildlife Service, Albuquerque, NM. 283 pp.

U.S. Fish and Wildlife Service. 1988. Great lakes and northern Great Plains piping plover recovery plan. U.S. Fish and Wildlife Service, Twin Cities, MN.

U.S. Fish and Wildlife Service. 1990. Recovery plan for the interior population of the least tern (*Sterna antillarum*). U.S. Fish and Wildlife Service, Twin Cities, MN.

U.S. Fish and Wildlife Service. 1990b. Determination of endangered status for the pallid sturgeon. Federal Register Vol. 55, No. 173. 36641-36647.

U.S. Fish and Wildlife Service. 1993. Comments on the draft Platte River Habitat Conservation program document. Memorandum from Regional Director to management alternatives workshop dated October 4, 1993. 5 pp.

U.S. Fish and Wildlife Service. 1993b. Pallid sturgeon recovery plan (draft). U.S. Fish and Wildlife Service, Bismarck, ND. 48 pp, plus appendices.

U.S. Fish and Wildlife Service. 1999. Endangered and threatened wildlife and plants: Proposed threatened status for the mountain plover. Federal Register Notice, Vol. 64, No. 30:7587-7601.

Western Ecosystems Technologies, Inc. 1997. Final Report, 1995 - 1996 Wildlife Monitoring Studies, SeaWest Windpower Plant, Carbon County, Wyoming. WEST, Inc., Cheyenne, WY. 154 pp.

Wetmore, A. 1939. Recent observations on the Eskimo curlew in Argentina. Auk 56:475.

Williams, G. P. 1978. The case of the shrinking channels - the North Platte and Platte Rivers in Nebraska. U.S. Geological Survey, Circular 781. 48 pp.

Wilson, B.L. and T.E. Bray. 1991. Report on the status of *Platanthera praeclara* (western prairie fringed orchid) on the Platte River in Nebraska from Phillips to Lewellen and on FERC Projects 1835 and 1417. Unpublished report. 94 pp.

Wyoming Game and Fish Department. 1996. Nongame Bird and Mammal Plan. Wyoming Game and Fish Department, Cheyenne, WY. 182 pp.

Ziewitz, J.W., J.G. Sidle and J.J. Dinan. 1992. Habitat conservation for nesting least terns and piping plovers on the Platte River, Nebraska. Prairie Nat. 24:1-20.

APPENDIX A

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Mountain-Prairie Region

IN REPLY REFER TO:
FWS/R6
COKANUT

MAILING ADDRESS:
Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225

STREET LOCATION:
134 Union Blvd.
Lakewood, Colorado 80228

RECEIVED
JAN 1 [illegible] 1998
US FISH AND WILDLIFE SERV.
CHEYENNE, WY

JUN 13 1996

Memorandum

To: Assistant Regional Director--CO/KS/NE/UT
Assistant Regional Director--MT/WY

From: DEPUTY Regional Director, Region 6

Subject: Intra-Service Section 7 Consultation for Federal Agency Actions Resulting in Minor Water Depletions to the Platte River System

This is the Fish and Wildlife Service's intra-Service biological opinion and conference opinion for Federal Agency actions which individually result in annual water depletions of 25 acre-feet (af) or less to the Platte River system. This biological opinion was prepared in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) and the Interagency Cooperation Regulations (50 CFR §402).

BACKGROUND

For nearly two decades, the Service has consistently taken the position that Federal Agency actions resulting in water depletions to the Platte River system may jeopardize the continued existence of one or more Federally listed threatened or endangered species and adversely modify designated critical habitat. The Service's position on this resource issue of national and international importance has been well documented by a number of formal section 7 consultations with other Federal Agencies. Some of the more notable consultations, involving major Federal actions, are characterized below.

The first such Federal action which spawned this position was the Basin Electric Power Cooperative's (Cooperative) proposed Gray Rocks Dam and Reservoir Project on the Laramie River in Wyoming. A major purpose of this $1.6 billion project was to provide cooling water for a coal-fired electric-generating station. Following an out-of-court settlement over a lawsuit among the Cooperative, the State of Nebraska, and the National Wildlife Federation, the Service issued a jeopardy biological opinion to both the U.S. Army Corps of Engineers and the Rural Electrification Administration on December 8, 1978 (U.S. Fish and Wildlife Service 1978 and 1978a), for project-related impacts stemming from 23,250 af of annual water depletions and their negative effects upon the endangered whooping crane (Grus americana) and its designated critical habitat area on the central Platte River, located over 300 miles downstream from the project site. Included within this biological opinion was a reasonable and prudent alternative which called for the project to establish a $7.5 million trust fund for maintaining and protecting whooping crane habitat. This reasonable and prudent alternative was one of several conditions included as part of the aforementioned settlement, which among other things, led to the establishment of the Platte River Whooping Crane Critical Habitat Maintenance Trust, Inc.

Less than five years after the Gray Rocks biological opinion was issued, the Service provided a biological opinion to the U.S. Bureau of Reclamation (Bureau) on January 20, 1983 (U.S. Fish and Wildlife Service 1983a), for the proposed Narrows Unit Project on the South Platte River in northeastern Colorado. It was determined that the proposed multi-purpose project would result in an annual depletion of 91,900 af to the central Platte River, and like the Gray Rocks Project, would jeopardize the continued existence of the endangered whooping crane and adversely modify the species' designated critical habitat area in Nebraska approximately 300 miles downstream from the project site. The Service proposed, as a reasonable and prudent alternative, that water storage be designed in the Narrows Unit Reservoir to provide needed supplemental Platte River flows for whooping crane roosting habitat and for channel width maintenance. The need for a reservoir storage operation study to precisely determine how to support the instream flow requirements also was included as part of the reasonable and prudent alternative. In addition, it was recommended that Service representatives be included in the planning for any resulting scheduled water releases; and, that the Service and Bureau work together to assure that the water released reaches the whooping crane habitat. As a result of this section 7 consultation, the Platte River Management Joint Study (Joint Study) was initiated by the Bureau and Service, in cooperation with the States of Nebraska, Colorado, and Wyoming. The intent of the Joint Study effort was to develop a fish and wildlife management plan for the Platte River system in central Nebraska that encompassed alternatives which would remove the jeopardy opinion, pursuant to the Act. Funding for the proposed Narrows Unit Project has not been authorized, and probably never will be.

On July 20, 1987, the Service issued a non-jeopardy biological opinion to the Corps on the Platte River off-site effects of the Wyoming Water Development Commission's proposed Deer Creek Dam and Reservoir Project (U.S. Fish and Wildlife Service 1987a). The purpose of the proposed project (to be sited along Deer Creek, a North Platte River tributary in eastern Wyoming), would be to provide a water supply for Casper during dry years when the city cannot obtain sufficient water from its surface or groundwater rights. It was determined that the project could annually deplete an average of 9,600 af of water from the Platte River system and have a negative impact upon the whooping crane and the species' designated critical habitat area in central Nebraska. It was further determined that the seasonal amounts and timing of these instream flow depletions would not adversely impact the availability or suitability of nesting and foraging habitats of the least tern (*Sterna antillarum*) and piping plover (*Charadrius melodus*), and would not adversely impact flows needed to sustain least tern forage fish populations. The proposed project also would not adversely impact bald eagle (*Haliaeetus leucocephalus*) foraging habitat or the species' forage fish populations. However, in order to preclude the likelihood of a situation involving jeopardy for the whooping crane and adverse modification of critical habitat; the Service agreed to accept the Commission's formal offer to fund the acquisition, restoration, and maintenance of a 24-acre whooping crane habitat area along the central Platte River. The Commission's offer was incorporated into the biological opinion as conservation measures, which were subsequently accomplished. The Commission has yet to approve funding for construction of the proposed project.

Shortly after the section 7 consultation was completed on the Deer Creek Dam and Reservoir Project, the Service issued another biological opinion to the Corps on October 14, 1987 (U.S. Fish and Wildlife Service 1987b), for the Denver Water Department's proposed Two Forks Project on the South Platte River at the base of Colorado's "front range." The intended purpose for the proposed dam and 1.1 million acre-foot reservoir would be to provide a source of water for future growth and development in the Denver metropolitan area. The Service's biological opinion concluded that the project would not likely jeopardize the bald eagle, least tern, piping plover, and whooping crane, or adversely modify designated critical habitat for the whooping crane. The determination that the proposed project would not likely jeopardize the whooping crane or adversely modify the species' designated critical habitat was predicated on the Service's acceptance of Denver's formal offer to off-set the anticipated adverse effects that would result from the project's water depletions to the central Platte River through implementation of conservation measures prescribed in the biological opinion. These measures called for Denver to acquire, restore, and maintain approximately 221 acres of whooping crane habitat (i.e., consisting of roosting and wetland meadow habitat) along the central Platte River. The proposed project was not authorized because the Environmental Protection Agency vetoed the Corps' issuance of a section 404 permit for the project. This veto has since been legally challenged.

On June 2 and July 1, 1994, the Service issued final biological opinions to the Forest Service for its proposal to re-authorize special use permits for six water-related projects in the Arapaho-Roosevelt National Forests of Colorado's "front range" area (U.S. Fish and Wildlife Service 1994a, 1994b, 1994c, 1994d, 1994e, and 1994f). These biological opinions concluded that water depletions resulting from the existing projects were likely to jeopardize the continued existence of the following Federally listed species: whooping crane, least tern, piping plover, and pallid sturgeon (Scaphirhynchus albus). It also was determined that the projects were likely to destroy or adversely modify designated whooping crane critical habitat along the central Platte River in Nebraska. In addition, the biological opinions concluded that the projects may affect, but would not likely jeopardize the continued existence of the following Federally listed species: western prairie fringed orchid (Platanthera praeclara), bald eagle, American burying beetle (Nicrophorus americanus), and the Eskimo curlew (Numenius borealis). The Service concurred with a "no effect" determination for the peregrine falcon (Falco peregrinus) in the biological opinions for the Forest Service projects.

The reasonable and prudent alternatives recommended in the biological opinions for the Forest Service projects call for each of the permitees to make an annual contribution of money (i.e., over an interim period) to an account established at the National Fish and Wildlife Foundation (Foundation) through a cooperative agreement with the Service. The financial contribution amount for each project was based on the ratio of its water depletions to total basin-wide depletions. Money from the Foundation account is to be dedicated toward the acquisition, conservation, recovery, and maintenance of aquatic and terrestrial habitat for Federally listed species and other fish and wildlife resources occurring along the central Platte River in Nebraska. A copy of the Service's cooperative agreement with the Foundation is included within this biological opinion as Appendix A.

The result of all the section 7 consultations described above is the Service's conclusion that the Platte River resource is (and has been for some time) in a state of jeopardy, and any Federal Agency action resulting in a water depletion to the Platte River will further or continue the deterioration of the remaining stressed habitat conditions. Consequently, the Service has adopted a jeopardy standard for all section 7 consultations on Federal Agency actions which result in water depletions to the Platte River. All Federal Agency actions resulting in projects which deplete Platte River flows will require formal section 7 consultation to comply with the Act.

In light of the complexity, magnitude, and importance of this resource issue, the Secretary of the Interior and the Governors from the three Platte River Basin States signed a Memorandum of Agreement on June 10, 1994 (Memorandum of Agreement 1994), to initiate development of a Central Platte River Recovery Implementation Program. The intent of this Program would be to help conserve and recover Federally listed species associated with the central Platte River in Nebraska. The Program also would protect designated critical habitat for the whooping crane and help prevent the need to list additional Platte River Basin associated species pursuant to the Act. Based on the current status of negotiations between the Department of the Interior and the three Basin States regarding aspects of a future Program, the Service believes it is reasonable to assume that a Program could be implemented within three years following the anticipated finalization of a framework agreement sometime during the fall of 1996.

During the course of recent informal consultations with other Federal Agencies, the Service has learned that there are over 1,000 projects which may require formal consultation in the near future. For example, the U.S. Forest Service has determined that about 600 individual livestock grazing permits may require formal consultation within the next year. Informal consultations with the Forest Service, Natural Resources Conservation Service, Bureau of Land Management, and the Corps has revealed that most of the actions which may require formal consultation in the immediate future are likely to result in individual project depletions of 25 af or less per year. Based on available information, it appears as though these actions will be independent from one another, and widely scattered throughout the Platte River Basin. The large number of pending or anticipated project proposals which will require separate section 7 consultations, combined with a limited Service staff, justifies the development of a more efficient approach to facilitate the accomplishment of this rather immense workload. A streamlined approach would allow section 7 consultations to be accomplished more efficiently under the Act and provide a mechanism for off-setting the adverse effect of each Federal Agency action. This also is consistent with and supported by the 1994 Interagency Memorandum of Understanding on implementation of the Act (Interagency Memorandum of Understanding 1994).

Using its authorities under section 7(a)(1) of the Act, the Forest Service (U.S. Forest Service 1996) has agreed to contribute $95,000 to the Foundation account for purposes of off-setting the adverse effects of Federal Agency actions resulting in minor water depletions (i.e., 25 af or less per year) to the Platte River system, and which would result in the development of a more efficient section 7 consultation approach for such Federal actions. The Forest Service contribution, including any from other Federal Agencies and entities, will be made to an existing account established at the Foundation through a cooperative agreement with the Service. The intent of this agreement is to establish administrative procedures whereby funds, contributed or donated to the Foundation for the purpose of fish and wildlife habitat conservation and recovery in the Platte River Valley, can be disbursed toward projects approved by the Service to facilitate the accomplishment of management of habitats and fish and wildlife conservation in the Platte River Valley. More specifically, habitat funds will be used toward acquisition, conservation, recovery, and maintenance of in-channel and adjacent out-of-channel habitat areas and habitat buffers, which have the following characteristics:

Necessary Characteristics for Channel Restoration

- Located between Lexington and Chapman, Nebraska;
- Within 1.5 miles proximity to areas that meet wet meadow characteristics;
- Channels maintained as active channel bed with barren, or sparsely vegetated sandbars--no woody vegetation (> 3 feet) on the cleared channel areas;
- Water width and depth characteristics should conform with those measured at whooping crane roost sites on the Platte River (e.g., 95-100 percent of channel width inundated and approximately 40 percent of water < 0.7-foot deep at 2,400 cubic feet per second);
- Not less than 0.5-mile distant or appropriately screened from potential disturbances including roads, railroads, occupied dwellings, and bridges;
- Avoiding, where possible, hazards such as power lines;
- Good upstream and downstream visibility;
- Conservation control of both river banks;
- Contributing toward long-term conservation and recovery;
- Controlled public access to minimize human disturbance to Federally listed species; and,

- Nesting sandbars or islands in the Platte River channel upstream of the confluence with the Loup River, corresponding with criteria developed by the Biology Workgroup of the Joint Study (1990).

Necessary Characteristics for Wet Meadows

- Between Lexington and Chapman, and within 1.5 miles of the historic, or high banks, of wide river channels meeting the criteria above;
- A core block of 640 contiguous acres with 0.5-mile buffer or appropriate screened from potential disturbances as roads, bridges, and occupied dwellings;
- Subirrigated by groundwater seasonally near the soil surface and above or within 0.5-foot of the surface during a portion of the growing season in lowest areas (i.e., swales and sloughs);
- Soils generally characterized as deep or moderately deep silt, loam, or fine sandy loam, with good to fair topsoil and organic matter (1-4 percent, and low salinity; Generally level or low undulating surface, dissected by small channels or depression; Soils should be capable of supporting facultative and obligative hydrophytic vegetation and burrowing or estivating wet meadow fauna;
- Native prairie grasses and herbaceous vegetation, lacking or mostly lacking sizable trees;
- Persistent, self-maintaining, and self-sustaining feature of the ecological landscape;
- Monitoring should follow restoration activity, with capability for corrective or remedial action;
- Any grazing and haying uses should be flexible in seasonal timing and intensity, and organic litter should be allowed to accumulate at the soil surface;
- Preferably linked by habitat corridors with other aquatic and semi-aquatic habitats;
- Contributing to long-term conservation and recovery goals;
- Controlled public access to minimize human disturbance to Federally listed species; and,
- Levels of soil moisture and occasional, small, pooled areas of water needed to maintain the lower trophic levels within the environment of the soil profile; especially soil invertebrates, plants, and biologically diverse communities in the wet meadows over the long term.

Funds deposited into the Foundation account can also be allocated toward projects (e.g., water conservation, etc.) or other means approved by the Service to acquire water for restoration of Platte River in-stream flows. The agreement provides a means for off-setting the adverse effects of Federal Agency actions resulting in minor water depletions to the Platte River system as addressed by this biological opinion (refer to Appendix A for more information regarding this agreement).

BIOLOGICAL OPINION

This biological opinion is based upon information regarding cumulative effects, conditions forming the environmental baseline, the species' ecological status, and the importance of habitats within the Platte River Basin to the survival and recovery of these species. The data used in the preparation of this opinion constitutes the best scientific and commercial information currently available.

The Service's biological opinion is that the direct and indirect effects associated with each of the representative types of proposed Federal Agency actions described below are likely to jeopardize the continued existence of the whooping crane, least tern, piping plover, and/or the pallid sturgeon; and depending on project location, likely will destroy or adversely modify designated critical habitat of the whooping crane. Because the ecological circumstances of the whooping crane, least tern, piping plover, and pallid sturgeon are tenuous, the Service believes the survival of these species in conjunction with future adverse effects to Platte River habitats likely to result from proposed Federal Agency actions cannot be ensured. It also is the Service's opinion that none of the proposed actions are likely to jeopardize the continued existence of the bald eagle, Eskimo curlew, American burying beetle, or western prairie fringed orchid.

CONFERENCE OPINION

This document also serves as a conference opinion for the sturgeon chub (Macrhybopsis gelida), a species currently designated as a candidate species, but expected to be proposed for listing as a threatened species in the near future. Although not yet proposed, it will be treated like a proposed species in this opinion to be in conformance with the Service's draft Endangered Species Consultation Handbook.

The Service's conference opinion is that the direct and indirect effects associated with each of the proposed Federal Agency actions are likely to jeopardize the continued existence of the proposed sturgeon chub. Consequently, the Service will implement the reasonable and prudent alternatives of this biological opinion to avoid the likelihood of jeopardizing the continued existence of the sturgeon chub.

PROJECT DESCRIPTION

As previously stated, the Service has learned that there are over 1,000 proposed Federal Agency actions within the Platte River Basin that are either pending or anticipated to occur in the very near future, of which most, if not all, may result in water depletions to the system. Some of these actions pertain to the re-authorization of existing projects which have already resulted in historic water depletions, while others involve new projects which may result in additional depletions to the Platte River system. An example of an action involving an existing project depletion might be the issuance or renewal of a license or permit which authorizes, among other things, an activity on Federal land that results in the use of and a continued depletion of water to the Platte River system from water impoundments or other such sources. An example of a Federal action involving a new project depletion might be the issuance of either a license or permit which authorizes the construction or accomplishment of something that results in a net increase to the amount of water already depleted from the system. Actions entailing the transfer of Federal funds or some other form of project authorization could also be included in these aforementioned examples.

Water depletions occur through one or more of the following means: consumption, alteration in timing of flows to the river, and/or evaporation. Some examples of these types of agency actions include, but are not limited to: construction of or continued use of water impoundments authorized by the Forest Service; construction of dams, grade stabilization structures, water and sediment control basins, and small flood control projects that are either funded or authorized by the Natural Resources Conservation Service; sand and gravel mining operations permitted by the Corps; and wetland creation or enhancement projects (the latter of which may exceed restoration of historic conditions) that are cost-shared by the Service through its Partners for Wildlife Program.

Naturally occurring and functioning wetland habitat communities in the Platte River Basin are believed to be important to a number of the Federally listed threatened or endangered and candidate species which are known to occur within this region. Likewise, many other fish and wildlife species also are dependent upon these same wetland habitat communities for some or all of their life cycles. Historical reductions in the number and area of wetland habitat communities within and outside of the Platte River Basin have contributed to declines in the diversity and abundance of wetland dependent fish and wildlife species (Currier et al. 1985, Gollop et al. 1986, Freeman and Brooks 1989, Sidle et al. 1989, Department of the Interior 1990, Galatowitsch and van der Valk 1994, and U.S. Fish and Wildlife Service 1994g and 1994h). Information regarding the ecological importance of wetland habitat communities as part of the Platte River system is provided in Appendix B of this biological opinion.

Projects involving the creation or restoration of a wetland habitat community within the Basin may result in a water depletion to the Platte River system. However, there are distinct differences between these two approaches to wetland habitat development (i.e., creation vs. restoration) which sets them apart as to whether they may or may not have a negative effect upon Federally listed species. The intent of a habitat creation project is to attempt to establish a new wetland community, including maintained hydrology and native self-sustaining hydrophytic vegetation, where none previously existed before. Conversely, the objective of a habitat restoration project is to re-establish (as nearly as practical) the original, naturally functioning conditions of an altered or degraded wetland community. In addition, wetland creation projects tend to be more costly and are less likely to succeed in providing quality habitat for fish and wildlife species as opposed to those involving restoration.

Projects which result in the alteration or conversion of one wetland habitat community type into that of another (e.g., palustrine, seasonally flooded into palustrine, semi-permanently flooded), should not have a negative impact upon the Federally listed species of concern provided such actions do not: (1) cause a net increase in the amount of water depletion to the Platte River system; (2) adversely modify or destroy designated critical habitat for the whooping crane; or (3) jeopardize these Federal trust fish and wildlife resources in some other manner.

In consideration of these factors and the important benefits which naturally functioning wetlands provide to fish and wildlife species (e.g., foraging, loafing, and nesting habitats for resident and migratory species, improved water quality, etc.), restoration projects will contribute positively toward the recovery of Federally listed species in the Platte River Basin, and help preclude the need to list additional species pursuant to the Act. Consequently, any water depletion to the Platte River system that may occur from a wetland restoration project will be off-set by the important habitat benefits which it provides to Federally listed species and other fish and wildlife resources within the Basin. However, any project involving the creation of a new wetland habitat community presents a much greater risk that it may not be successful in establishing quality habitat which would off-set the adverse effects associated with a water depletion to the Platte River system. With respect to wetland mitigation projects involving the restoration and/or creation of replacement habitat, and which may result in water depletions that could trigger section 7 of the Act; it is the Service's position that such actions should conform to the guidance contained in the Regional policy memorandum included as Appendix C of this biological opinion. Because of the environmental benefits provided by wetland restoration projects as discussed above, the Service has determined that they are not likely to adversely affect any Federally listed species or designated critical habitat within the effected area and are therefore exempt from consultation.

This biological opinion covers Federal Agency actions other than wetland restoration projects that result in individual project depletions of 25 af or less per year to the Platte River system, regardless of location within the Basin (or as otherwise described below in the "REASONABLE AND PRUDENT ALTERNATIVES" section). However, the effects analysis and reasonable and prudent alternatives apply only to Federally listed and designated candidate species and whooping crane critical habitat occurring along the Platte River in Nebraska. Consequently, a separate section 7 consultation and analysis of effects may be required for Federally listed species in Colorado and Wyoming for any project depleting 25 af or less per year from the Platte River system. Also, any Federal Agency project that depletes more than the allotted amount of water addressed by this biological opinion will require a separate section 7 consultation.

For qualifying projects, the Service will provide lead Federal Agencies with a letter or memorandum that will substitute for a separate biological opinion on

87

each action. Federal Agencies should still continue to conclude that each action resulting in a depletion 25 af or less per year to the Platte River system may adversely affect the whooping crane, least tern, piping plover, and/or pallid sturgeon and sturgeon chub, and designated whooping crane critical habitat. The number of these species and designated critical habitat which may be adversely affected depends on the geographic location of the proposed action within the Platte River Basin, the specific river reaches impacted by the project depletion, and in the case of the lower Platte River, the timing of the project depletion during the year.

The lead Federal action agency should notify the Service in writing of the "may affect" finding for qualifying projects. The Service will then provide the action agency with a written response stating whether or not it concurs with this determination. Assuming concurrence, the Service's reply will inform the action agency that section 7 consultation for the project is covered by this biological opinion, and that further consultation under the Act is not necessary.

Consultations on these projects are to occur between the lead Federal Agency and the Service's Ecological Services Field Office located in the State where the action occurs. The Ecological Services Field Office located in Grand Island, Nebraska will maintain a record of all of the documented individual project locations, the river reach impacted by that project depletion, the estimated amount of each project depletion, and the calculated cost for off-setting the resource impacts for each project depletion. A quarterly report detailing these project depletion records will be sent to the Regional Office.

This biological opinion will remain in effect until either (1) all of the aforementioned funds deposited into the Foundation account by the Federal Government and other entities have been debited toward off-setting the adverse effects of minor water depletions to Platte River resources as described below in the "REASONABLE AND PRUDENT ALTERNATIVES" section; or (2) the Program described above in the "BACKGROUND" section is not implemented by October 1, 1999. Upon the occurrence of either of these occasions, intra-Service section 7 consultation will be reinitiated for the Federal Agency actions as discussed below in the "REASONABLE AND PRUDENT ALTERNATIVES" and "CONCLUSION" sections.

STATUS OF SPECIES

Whooping Crane

The whooping crane was listed as endangered on March 11, 1967 (32 F.R. 4001). The historic breeding range of the whooping crane extended from central Illinois northwestward through northern Iowa, western Minnesota, northeastern North Dakota, southern Manitoba and Saskatchewan, and the general vicinity of Edmonton, Alberta, to the present nesting area of Wood Buffalo National Park in the Northwest Territories, Canada (U.S Fish and Wildlife Service 1994f). Winter distribution occurred primarily along the Gulf of Mexico from Louisiana to northeastern Mexico. The last remaining individual of a nonmigratory population in southwestern Louisiana was captured in 1950.

Although whooping cranes probably were never very abundant, population estimates of 1.300 to 1.500 were made by Allen (1952). Banks (1978) used two independent techniques of population estimation to derive estimates of 500 to 700 whooping cranes in 1370.

By 1941, the numbers of the last remaining wild population (i.e., Wood Buffalo-Aransas flock) had declined to a low of 16 individuals. Today, the sole remaining natural breeding population nests at Wood Buffalo in Canada and winters on and near the Aransas National Wildlife Refuge (Aransas) on the Texas coast. It migrates through Nebraska twice each year. The population gradually increased from the 1940's to the mid-1980's. In 1987, the population of the Wood Buffalo-Aransas flock reached 134 birds and fluctuated near that level (132-146) during the ensuing years until February 15, 1996, when 158 birds were accounted for. The number of birds in the Wood Buffalo-Aransas flock currently stands at 157. Intensive efforts to reestablish other breeding populations in the wild have not succeeded.

The Wood Buffalo-Aransas flock commonly uses the Platte River and wet meadow habitat during spring and fall migrations. Spring sightings are more common along the central Platte River than any other habitat area. In recognition of its importance to the whooping crane, a 3-mile-wide, 56-mile-long reach from Lexington to Denman, Nebraska, is designated as critical habitat (50 CFR 17.95). Factors considered in making the critical habitat determination for the Platte River are:

1. The Platte River bottoms provide dependable sources of food, water, and other nutritional or physiological needs of the whooping crane during spring and fall migrations. Insects, crayfish, frogs, small fish, and other small animals, as well as some aquatic vegetation in the river and adjacent wet meadows and cereal crops in nearby croplands, appear to be major items taken during the migration period.

2. Under specific flow regimes, the Platte River generally provides whooping cranes with the required open expanse for nightly roosting. The availability of shallow, submerged sand and gravel bars in rivers and lakes appears to be one of the major factors determining whooping crane use of these habitats as roosting sites. Whooping cranes observed during migration are most often found within short flight distances of these wetland areas.

3. The Platte River provides needed isolation. Whooping cranes do not readily tolerate human disturbances. A human on foot at distances of over 1/4 mile can quickly put a whooping crane to flight.

During the spring migration, wet meadows along the Platte River provide whooping cranes the opportunity to obtain essential food for survival and reproduction. Resting and foraging during spring migration ensure that the birds arrive in a healthy condition on the breeding grounds at Wood Buffalo. Healthy birds are essential for successful reproduction and, ultimately, the survival and recovery of the species. The health and survival of whooping cranes are dependent upon the condition and abundance of their habitat. Like other migratory birds with delayed sexual maturity and lifelong pair bonds. whooping cranes adhere to ancestral breeding areas. migratory routes. and wintering grounds. leaving little possibility of pioneering into new regions. The importance of maintaining traditional habitats such as the Platte River is amplified by the impact from ongoing conversion of pothole and prairie to hay and grain production. which has made nearly all of the whooping cranes' original migrational range unsuitable for use by the species (U.S. Fish and Wildlife Service 1994g).

Whooping cranes roost in wetlands and shallow bodies of water. River channels having a wide expanse of water and shallow submerged sandbars are among the aquatic habitats used. An evaluation of ten known whooping crane riverine roosting sites identified the following characteristics (U.S. Fish and Wildlife Service 1981):

1. Wide channel: nine of ten roost sites measured were between 510 and 1.200 feet:
2. Unvegetated:
3. Fine substrate. usually sand:
4. Good horizontal visibility unobstructed from riverbank to riverbank and at least a few hundred yards upstream and downstream (or to a bend in the river) at all sites:
5. Good overhead visibility. absence of tall trees. tall and dense shrubbage. or high banks near the roost:
6. Shallow water except in the main channel (all sites evaluated were less than 12 inches deep and six of nine sites were 2 to 6 inches deep):
7. Slow flow. approximately 1-4 miles per hour (1.5-5.9 feet per second). although water in the main channel may be flowing faster:
8. Proximity (usually 1 mile) to suitable feeding sites:
9. The presence of an unvegetated sandbar with very low elevation above water and near the middle of the river: and.
10. A distance of at least 0.25-mile from roads. houses. and railroad tracks.

Measurements at 30 whooping crane roost sites on the Platte River from 1983 to 1993 have supplemented this information. These data indicate that the widest channels are preferred. Use of channels wider than 900 feet is disproportionately high in relation to their low availability. The wetted width of the channel at these sites averaged 92 percent of the channel width (median of 95 percent). and water depth ranged from shallow submerged sandbars to deeper channels. 1.5-3.5 feet deep. Such information systematically collected at roost sites over an 11-year period has been used to model the quality of roost habitat as a function of Platte River discharge (described in Appendix D).

Maintenance of roost habitat on the Platte River is dependent on maintaining open channels and suitable flow. Altered flow regime and sediment transport processes have resulted in woodland expansion and narrowing river channels (Williams 1978, Lyons and Randle 1988). The decrease of sandbars and open water and encroachment of forestland into the former channels coincide with decreased streamflows. In the 120-mile river segment from Kingsley Dam downstream to the J-2 Hydropower Return near Lexington, Nebraska, spring streamflows have been reduced by 85 percent. This segment is now heavily forested and rarely used by whooping cranes (i.e., only one confirmed use occurred in the past 50 years).

In the 90-mile river reach from the J-2 Hydropower Return downstream to Chapman, Nebraska, peak flows have been reduced by about 70 percent since 1930 (U.S. Fish and Wildlife Service 1981, Williams 1978). Most of this reach is forested, but some short segments still have wide channels, and other segments have been mechanically cleared and maintained free of vegetation. These areas are the primary suitable whooping crane habitat remaining along the Platte River.

Wet meadows once occurred extensively along the Platte River; however, substantial reductions have occurred during the past century (Currier et al. 1985, Sidle et al. 1989, Department of the Interior 1990). Groundwater levels, which maintain wet meadows, are hydrologically linked with river stage. The reduction of springtime pulse flows, owing to cumulative water storage and diversion, has facilitated land leveling, ground water drainage, and conversion of wet meadows to row crop agriculture. Remaining wet meadows compose somewhat less than 5 percent of the Platte River valley near the river. Whooping cranes require isolation, further reducing the value of small, fragmented wet meadow parcels as whooping crane foraging habitat

Further information about the biology and status of the whooping crane can be found in the Whooping Crane Recovery Plan (U.S. Fish and Wildlife Service 1994g) and in Appendix D of this biological opinion.

Least Tern (Interior Population)

The interior population of the least tern was listed as an endangered species on May 28, 1985 (50 F.R. 21792). There are currently nearly 7,000 least terns widely scattered across the interior of the United States (Kirsch and Sidle, in review) (Table 1, Appendix E). Along the Platte River, least terns nest on sandbars and at sand and gravel pits from the Missouri River to North Platte, Nebraska. The 876 least terns censused during the first three weeks in June 1991 along the North Platte (Lake McConaughy shoreline), Platte, Loup, and Elkhorn rivers represented 13 percent of all censused least terns that year; and the 456 least terns observed along the Platte River represented 6 percent of the total population (Sidle et al. 1991, Kirsch and Sidle, in review). In 1993 and 1994, there were 676 and 660 least terns, respectively, censused along the Platte and North Platte rivers in Nebraska. An analysis of least tern population data for 1986-1991 for the entire range indicated an overall positive trend (Kirsch and Sidle, in review). The strong positive trend for the entire population was influenced by a strong positive trend on the lower Mississippi River where more than half of the least terns nest.

Least tern populations and subspecies in North America nest in areas with similar substrate. Beaches, sand and gravel mining spoil piles, sandbars, islands, and peninsulas are the principal breeding habitats. Unconsolidated substrate consists of small stones, gravel, sand, debris, and shells. A mixture of coarse sand, shells, and other fragments offer cryptic qualities, stability in wind, and water permeability. Vegetative cover is usually less than 20 percent at the time of nesting. Least tern colonies in denser vegetation may be a response to habitat loss or a function of strong site tenacity. Eventually, vegetated areas are abandoned.

Least terns feed on small fish in the river and at sand pit lakes (Wilson 1991). Most least terns nest at sand pit spoil piles along the Platte River from North Platte to the Loup River confluence (Sidle and Kirsch 1993) because suitable sandbar habitat is uncommon due to cumulative instream flow withdrawals for various purposes.

Piping Plover

The piping plover was listed as a threatened species on December 11, 1985 (50 F.R. 50733). During 1991, 236 piping plovers were censused along the North Platte (Lake McConaughy shoreline), Platte, Loup, and Elkhorn rivers during the first three weeks in June (Sidle et al. 1991). During the same time frame, an additional 162 piping plovers were censused along the Niobrara River in Nebraska. The resulting total of 398 plovers represented 11 percent of the Great Plains population (Canada and United States) and 19 percent of the U.S. Great Plains population (Haig and Plissner 1992). The 206 piping plovers censused along the North Platte, Platte, Loup, and Elkhorn rivers in 1991 (Sidle et al. 1991) represented 10 percent of the U.S. Great Plains population. In 1993 and 1994, 291 and 222 piping plovers, respectively, were censused on the Platte and North Platte Rivers in Nebraska. The Northern Great Plains piping plover population is declining by 7 percent annually (Ryan et al. 1993). The Piping Plover Recovery Team has recommended that the Service reclassify the Northern Great Plains population as endangered.

Piping plovers feed on invertebrates near the water's edge and on moist river substrate (Corn and Armbruster 1993a). They nest on sparsely vegetated sandbars, sand and gravel spoil piles, reservoir shorelines, and alkali wetlands. Nesting habitat on the Platte, Niobrara, and Missouri rivers typically consist of dry sandbars located midstream in wide, open channel beds and with less than 25 percent vegetative cover (Faanes 1983, Schwalbach 1988, Ziewitz et al. 1992). These conditions, similar to those used by the least tern, provide the essential requirements of wide, horizontal visibility; protection from terrestrial predators; isolation from human disturbance; and sufficient protection from rises in river levels.

Least Tern and Piping Plover Habitat

Channelization, irrigation, and the construction of reservoirs and pools have contributed to the elimination of much of the least tern and piping plover sandbar nesting habitat in the Missouri River system. In the Platte River Basin, continuing water depletions reduce the width and/or depth of water surrounding nest sites, and this may increase predation and human disturbance. Increased depletions permit vegetation encroachment into nesting areas. Extreme depletions de-water river reaches sufficiently to kill small fishes, the least tern's principal food source. Water depletions to the Platte River system have reduced annual instream flow volumes by nearly 70 percent (Williams 1978). Numerous dams and water diversion canals in the upper Platte River Basin have reduced water and sediment discharge in the Platte River, resulting in the transformation of wide, open channels to multiple narrow channels separated by wooded islands (Eschner et al. 1983, Williams 1978). This vegetation encroachment eliminated much habitat for several species of birds, including least terns and piping plovers (Currier et al. 1985, Sidle et al. 1989, U.S. Fish and Wildlife Service 1981).

Comparisons of sandbar area, channel width, mean elevation, and maximum elevation of nest sites versus systematic sample sites in the lower and central Platte River study areas indicate that least terns and piping plovers select wide channels with a large area of dry, sparsely vegetated sand (Ziewitz et. al. 1992). By these two measures alone, habitat availability was considerably greater on the lower Platte River than on the central Platte River. These differences between the nest and systematic sample sites and between the lower and central Platte River suggest that habitat availability is limited in the river channel along the central Platte River. A greater number of least terns and piping plovers nest on sand pits rather than on the river along the central Platte River (Lingle 1988 and 1989; Sidle and Kirsch 1993); a further indication that riverine habitat is in short supply.

The lower Platte River (Loup River confluence to Missouri River) still experiences periodic high flows which scour vegetation from the channel and pile sand into suitable sandbars for least tern and piping plover nesting (Sidle et al. 1992). Such flows continue to occur because most of the watershed in tributaries of the lower Platte River (Loup, Elkhorn, and Salt Creek rivers) has not been dammed or diverted.

Recovery plans for the piping plover and least tern call for the maintenance of the distribution and range of both species, protection of essential habitat, and the restoration of nesting habitat (U.S. Fish and Wildlife Service 1988 and 1990a). Essential habitat along the Platte River refers to suitable sandbars in the river channel with appropriate flows. Given the degraded habitat conditions for these birds in the central Platte River, channel habitat restoration and adequate instream flows are necessary. Because little nesting habitat remains on the central Platte River (see Appendix E for details on least tern and piping plover distribution) owing to cumulative water withdrawals, proposed flow depletions must, therefore, be evaluated for their effect on least terns and piping plovers.

Further information about the biology of the piping plover and least tern can be found in the Great Lakes and Northern Great Plains Piping Plover Recovery Plan (U.S. Fish and Wildlife Service 1988), Recovery Plan for the Interior

Population of the Least Tern (U.S. Fish and Wildlife Service 1990b). and Appendix E of this biological opinion.

Western Prairie Fringed Orchid

The western prairie fringed orchid was listed as a threatened species on September 28. 1989 (57 F.R. 39863). This species occurs in wet prairie habitats. It was distributed historically throughout much of the western Central Lowlands and eastern Great Plains physiographic provinces of the central United States (Lobeck 1957) and Interior Plains in extreme south-central Canada (Brownell 1984). Comparison of the historic and extant ranges shows that the species has apparently been extirpated from South Dakota, with significant reductions in counties of occurrence in Missouri. Iowa. southeastern Kansas. and eastern Nebraska.

[illegible] [illegible]

Historic (observed prior to 1970 and/or confirmed destroyed). extant (observed since 1970). ~~and unverified reports exist for more than 160 sites in 102 counties in eight States and one Canadian Province.~~ Extant populations of the fringed orchid occur at ~~61 sites~~ in 38 counties in ~~seven~~ States: Iowa (~~twelve~~ counties). Kansas (seven counties). Minnesota (~~eight~~ counties). Missouri (~~two~~ counties). Nebraska (~~five~~ counties). North Dakota (two counties). ~~Oklahoma (two counties)~~. and in the Canadian Province of Manitoba (U.S. Fish and Wildlife Service 1994h).

[illegible]

The western prairie fringed orchid has declined significantly throughout its historical range. largely due to habitat loss and degradation (Freeman and Brooks 1989). Conversion of prairies for row crops. fire suppression. haying. and land development are factors which contributed to the species' decline. Five Kansas populations are known or assumed to have been destroyed due to conversion of prairies for agriculture; three of these since 1969. Fire suppression was a factor in the establishment of shrubby vegetation at two sites in the Nebraska Sandhills where the western prairie fringed orchid formerly occurred. Shading by the shrubbery may have contributed to the elimination of these populations.

Annual mowing of prairies for hay is a common practice in Kansas. Nebraska. and South Dakota. This practice. which typically occurs prior to the maturation of the western prairie fringed orchid's fruits. may have contributed to the decline of the species. Stream channelization and draining of seasonally wet prairies in the Nebraska and South Dakota Sandhills probably adversely impacted the species by altering the hydrologic regime. In most instances. channelization and draining was done to permit reliable access to wet prairies for hay. Other agricultural practices. such as grazing and herbicide use. also may have impacted the species.

The western prairie fringed orchid occurs on wet-mesic subirrigated prairies and sedge meadows along the floodplain of the Platte River. The only known population is on Mormon Island Crane Meadows. in Hall County. Nebraska. Peak flows have been greatly diminished during the past century. facilitating conversion of most low-lying areas near the river from grassland to intensive agriculture. Consequently. little habitat remains that is suitable for the fringed orchid. The Department of the Interior (1990) estimated that 112.791

acres of wet meadow had been lost along the North Platte and Platte Rivers in Nebraska between 1938 and 1982.

The western prairie fringed orchid recovery team recognizes the destruction of habitat for cropland as the single most irreversible threat to the species (U.S. Fish and Wildlife Service 1994h). It is likely that this threat varies from site to site, depending on local climate, groundwater hydrology, and soil characteristics.

Further information on the biology and status of the western prairie fringed orchid can be found in the Technical/Draft *Platanthera praeclara* (Western Prairie Fringed Orchid) Recovery Plan (U.S. Fish and Wildlife Service 1994h) and Appendix F of this biological opinion.

American Burying Beetle

The American burying beetle was listed as an endangered species on July 13, 1989 (54 F.R. 29655). The American burying beetle has been recorded historically from at least 150 counties in 35 States (including the District of Columbia) in the eastern and central United States (Peck and Kaulbars 1987, Madge 1958), as well as along the southern fringes of Ontario, Quebec, and Nova Scotia in Canada (Peck and Anderson 1985). Its historical range can roughly be described as most of temperate eastern North America, from Nova Scotia as far west as North Platte, Nebraska. The northernmost record is from the upper peninsula of Michigan and the southern terminus of its range is Kingsville, Texas.

Peck and Kaulbars (1987) broadly characterized the distributions for 32 species of nearctic carrion beetles. These authors placed the American burying beetle in the category "Eastern deciduous forest region." Since 1970, the American burying beetle has been documented from Rhode Island, Oklahoma, Nebraska, Arkansas, Missouri, and Kentucky (U.S. Fish and Wildlife Service 1991), and there was a single 1972 record from Ontario (Perkins 1983). In addition, during 1995, the occurrence of the beetle was documented in Gregory and Trip counties of South Dakota. Existing populations are known to occur in Rhode Island, Oklahoma, Arkansas, South Dakota, and Nebraska.

Historical records for the American burying beetle in Nebraska indicate the species occurred along watercourses where riparian deciduous or scrub forests were predominant (Jameson and Ratcliffe 1989). Recent collections in Nebraska (1970-present) were in Cherry, Custer, Dawson, Frontier, Gosper, Keya Paha, Lincoln, and Thomas counties (Table 1, Appendix G). The 1988, 1993, and 1994 beetle collections in Dawson and Lincoln counties were in riparian woodlands along the south bank of the Platte River (four specimens), cropland (two specimens), and grassland (36 specimens). Forty-five of the 51 beetles collected in Nebraska during the period 1988-1994, were collected within or adjacent to grassland habitat. In 1995, all but one of the 282 beetles collected were found in grassland; a single beetle was captured in riparian woodland.

The prevailing theory regarding the species' decline involves habitat fragmentation (U.S. Fish and Wildlife Service 1991). It is possible that water development may have been a factor contributing to the decline of the American burying beetle in Nebraska. Water storage and diversions substantially reduced high flows in the river, which typically occurred during spring. This in turn reduced the frequency and duration of soil saturation caused by a periodically high water table. As a result, low-lying prairies and wet meadows in and near the river became drier and were converted to cropland. The continuing loss and fragmentation of grassland habitat may have an adverse effect on the American burying beetle. Owing to the cumulative and ongoing water withdrawals, proposed flow depletions must, therefore, be evaluated for their effect on the American burying beetle.

Further information about the biology and status of the American burying beetle can be found in the American Burying Beetle Recovery Plan (U.S. Fish and Wildlife Service 1991) and Appendix G of this biological opinion.

Bald Eagle

The bald eagle was listed as an endangered species on March 11, 1967 (32 F.R. 4001). One cause of population decline was impaired reproduction caused by accumulation of pesticides ingested from contaminated prey. The populations and the number of occupied nesting territories have increased throughout much of the United States over the past two decades. As a result, the Service reclassified the bald eagle from endangered to threatened throughout its range in the lower 48 States on July 12, 1995 (60 F.R. 36000).

Wintering concentrations of this species in the mid-continent region are associated primarily with river systems. Studies of wintering bald eagles and their habitat use over the past 20 years have documented the Platte River as a major wintering area for bald eagles (Vian 1971, U.S. Bureau of Reclamation 1981, Lingle and Krapu 1986, Stalmaster and Associates 1990). During midwinter surveys (1982-1994), an average of 335 birds (43 percent of the Statewide wintering population) were found in the Platte River Basin area of Nebraska. With the exception of Harlan County Reservoir, no other area in Nebraska supports more bald eagles on average than the 30-mile stretch of Platte River between Darr and Elm Creek. In 1981, six communal night roosts on the Platte River between Darr and Elm Creek averaged 60 bald eagles per night. Currently, there are at least eight communal roosts along the Platte River between Brady and Grand Island, Nebraska.

Survival of individual bald eagles, particularly those in their first year of life, probably depends heavily on conditions they encounter during the wintering period. The physiological condition of adults at the beginning of each breeding season, an important factor influencing reproductive success, also is affected by how well their energy demands are met in wintering areas. Thus, the survival and recovery of nesting populations depend on the availability of suitable wintering areas (U.S. Fish and Wildlife Service 1983b).

Along the Platte River, bald eagles spend four to five months on their wintering grounds during a given year (Vian 1971, Lingle and Krapu 1986). The majority of wintering bald eagles are found near open water where they feed primarily on fish and waterfowl, usually taking those which are dead.

crippled, or otherwise vulnerable (U.S. Fish and Wildlife Service 1983b, Lingle and Krapu 1986, Stalmaster and Associates 1990). In addition, bald eagles are known to feed on carrion, small mammals, and game birds (Lish 1975, U.S. Bureau of Reclamation 1981, Lingle and Krapu 1986).

During the primary wintering period of December to March, suitable roosting and foraging habitat is important to bald eagles (Lingle and Krapu 1986, Stalmaster and Associates 1990). Bald eagles occur during spring and fall migrations as well (Johnsgard 1980). Suitable roosting habitat along the Platte River has increased over the past 50 years as the riparian forest matured. The riparian forest has replaced open channel and sandbar habitats.

Both available foraging habitat and the availability of prey are affected by the operation of water development projects. For example, reservoir releases maintain open water foraging habitat (free of ice cover) in some river reaches where bald eagles forage. Flow conditions also influence species composition of the forage fish community and age and size structure of forage fish. A single low flow event can have lasting effects on the forage fish community. Low summer flows and elevated water temperatures have resulted in fish kills during six of the last nine years in the central Platte River. (See Appendix H for flows needed for forage fish.)

Temporal shifts in diet follow changes in prey availability. When fish become difficult to obtain (for example, during ice cover or high winter flows) bald eagles depend more heavily on waterfowl as a food source.

Further information about the biology and status of the bald eagle can be found in the Northern States Bald Eagle Recovery Plan (U.S. Fish and Wildlife Service 1983b) and Appendix I of this biological opinion.

Eskimo Curlew

The Eskimo curlew was listed as an endangered species on March 11, 1967 (32 F.R. 4001). The historic record, summarized in Gollop et al. (1986), points out that there were three principal spring migration staging areas in the continental United States: (1) Galveston Island and adjacent inland areas of southeastern Texas; (2) Hall, Hamilton, Merrick, and York counties, Nebraska; and (3) southeastern South Dakota on wetlands adjacent to the Missouri River near Yankton.

Banks (1977) agreed that market hunting mortality contributed to population declines, but he also suggested that an increase in the number of storms in the North Atlantic during fall migration and lowered ambient temperatures on the breeding grounds in arctic Canada in the 1880's may have caused increased mortality and reduced reproductive success.

The decline also may have been related to habitat loss, both on the wintering grounds of the Argentine Pampas (Wetmore 1939) and at migration stops on the North American prairies. During spring in Nebraska, Eskimo curlews were found on "...pieces of land which had not been plowed and where the grasshopper eggs were laid" (Swenk 1915). Woodward (1980) noted that although the Hudsonian godwit (Limosa haemastica), a species with a range nearly identical to the

Eskimo curlew, began to increase in numbers following the cessation of market hunting, the Eskimo curlew continued its decline.

The Eskimo curlew apparently made extensive use of wet meadow habitats while migrating through North America (Gollop et al. 1986). Wetland loss has been extensive on the Great Plains in the last 100 years. About 90 percent of the wetlands in Nebraska's Rainwater Basin area, including the traditional Eskimo curlew stopover area in the eastern portion of this area, have been drained. Loss of wet meadows adjacent to the Platte River also has been extensive (Currier et al. 1985).

Wet meadows and similar prairie grassland vegetation were used most often by the Eskimo curlew while migrating through Nebraska. Wet meadows in the area of Hall, Hamilton, Merrick, and York counties were of special importance to this species. The most recent record of an Eskimo curlew in Nebraska (Faanes 1990a) was of a single bird foraging with other shorebird species in a wet meadow on the Mormon Island Crane Meadows Preserve near Grand Island, Nebraska. Based on observations from elsewhere in the species' range, especially during migrations, the Service believes that wet meadows are of crucial importance to the continued existence of the Eskimo curlew.

Although it is difficult to predict where and when the Eskimo curlew will again use Platte River wet meadows, water withdrawals may potentially affect this species in the following situations:

- Reduced flows that would inhibit the productivity of invertebrates inhabiting wet meadows;
- Altered flows that increase the likelihood that woody vegetation will invade and "take over" native wet meadow habitats; and,
- Alteration of flow regimes that would facilitate conversion of wet meadows to intensified agricultural uses, such as row crops with the subsequent application of pesticides.

Further information about the biology and status of the Eskimo curlew can be found in Appendix J of this biological opinion.

Pallid Sturgeon

The pallid sturgeon was listed as an endangered species on September 6, 1990 (55 F.R. 4001) (U.S. Fish and Wildlife Service 1990c). Although the species' range is large, catch records are extremely rare, with no captures of subadults in recent years. The last reported observation of possible spawning was in 1974. The species may be close to extinction (U.S. Fish and Wildlife Service 1993a).

The range of the pallid sturgeon encompasses the Missouri River; the lower reaches of the Platte, Kansas, and Yellowstone rivers; and the Mississippi River below the confluence with the Missouri River. Destroyed and altered habitats are believed to be the primary cause of adverse effects on reproduction, growth, and survival of the pallid sturgeon. Recovery of the pallid sturgeon is unlikely to be successful without restoring the critical portions of morphology, hydrology, temperature regimes, and sediment/organic matter transport of the rivers that provide the life requisites for pallid sturgeon (U.S. Fish and Wildlife Service 1993a).

Sediment and discharge are the raw material and driving force, respectively, for habitat development in large floodplain rivers such as the lower Platte, Missouri, and Mississippi rivers. The process of erosion transports organic matter and large woody debris from the floodplain, as well as sediment in the form of rock, gravel, sand, silt, and clay to large floodplain rivers from tributaries. Before the Missouri River was channelized and impounded, it annually eroded 4.8 acres/mile of its floodplain (U.S. Army Corps of Engineers 1981). River impoundments have eliminated 80 percent of this material (Slizeski et al. 1982) since the early 1950's. The lack of sediment upset the natural channel equilibrium and was replaced by a variety of nonequilibrium processes such as hydraulic sorting and bed paving. In the lower Missouri River Basin, channel degradation has occurred below Gavins Point Dam, the lowest main stem dam, downstream to near the mouth of the Platte River. Degradation has resulted in the loss of connection with shallow backwater areas of the floodplain.

The Platte River in Nebraska and the Yellowstone River in Montana are among the largest tributaries in the Missouri River Basin. The Platte River is the only tributary below Gavins Point Dam that originates in the Rocky Mountains and delivers runoff from mountain snowmelt to the lower basin. Because of its importance to the lower Missouri River basin, the Platte River figures prominently in the recovery plan for the species.

Of 22 occurrences of pallid sturgeon reported in the lower Missouri River Basin (below Gavins Point Dam) in Nebraska between 1980 and 1995, ten are from the Platte River or the Missouri River near the Platte River confluence. Thus, 45 percent of the observations in Nebraska are from an area representing about 10 percent of the range. Recent occurrences of pallid sturgeon in the Platte River are reported as far upstream as the Elkhorn River confluence (Platte River mile 32).

High flows during the springtime period are particularly important for pallid sturgeons. Since 1952, eight of the eleven captures of pallid sturgeon in the Platte or Missouri rivers near the mouth of the Platte River occurred during May and June; the other three occurrences were in April. Ten of eleven occurrences correspond with years when May-June flows in the lower Platte River were above normal for the recent period (Louisville gauge, 1970-1995). Only one sighting occurred in years when flow was below normal, suggesting that flow depletions may adversely affect pallid sturgeon use of the Platte River.

Spring flows of the central Platte River have greatly declined since the early 1900's (Williams 1978, Eschner et al. 1983). Since the 1930's, the diminution of flows in the upper Basin alone (above the Loup River) accounts for a 40 percent decrease in May and June flows in the lower Platte River. Faanes (1992) estimated that other proposed projects in the upper Platte River Basin would decrease the remaining flow in the central Platte River by 75 percent.

Owing to the precarious state of pallid sturgeon populations throughout its range and to cumulative and ongoing water development throughout the Platte River Basin, proposed flow depletions must, therefore, be evaluated for their effect on pallid sturgeon.

Further information about the biology and status of the pallid sturgeon can be found in the Pallid Sturgeon Recovery Plan (U.S. Fish and Wildlife Service 1993a) and Appendix K of this biological opinion.

Sturgeon Chub

The sturgeon chub was assigned Federal Category 2 candidate species status in the early 1980's because of decreasing numbers, but information on the species was limited. Based on status report information, the sturgeon chub was upgraded to Category 1 candidate species status July 11, 1994 (U.S. Fish and Wildlife Service 1994i). On August 8, 1994, the Service received a petition to list the sturgeon chub, together with the sicklefin chub (Macrhybopsis meeki) as endangered species pursuant to the Act. The inability to adapt to human induced alterations was cited as the overriding reason for the proposed listing. Of the five listing criteria set forth in section 4(a)(1) of the Act, three were indicated by the petitioners as pertaining to sturgeon chub: (A) the present or threatened destruction, modification, or curtailment of the species habitat or range; (D) inadequacy of existing regulatory mechanisms; and (E) other natural or manmade mechanisms (e.g., severe drought in the early 1990's). The Service reviewed the petition, as well as other available information, and reported in a Notice of 90-Day petition finding that the information was substantial and that listing may be warranted (U.S. Fish and Wildlife Service 1995).

Sturgeon chub require turbid, free-flowing riverine habitat with a combination of rock, gravel, and/or sand substratum (Moore 1950, Bailey and Allum 1962, Brown 1971, Pflieger 1991). They have been found in greatest abundance in gravel riffles (Stewart 1981, Werdon 1992). Habitat alteration and destruction are the primary reasons for decline in the population of sturgeon chub. Beginning in 1944 with the authorization of the Flood Control Act, 105 reservoirs were constructed on rivers and streams in the Missouri River Basin (U.S. Fish and Wildlife Service 1993c). An additional 733 miles (1,183 km) of the Missouri River have been channelized. The cumulative effect of these water development projects currently leaves only one-third of the Missouri River free-flowing (U.S. Fish and Wildlife Service 1993c). Reservoirs likely impacted sturgeon chub populations by flooding riffle habitats, altering flow and temperature regimes, and reducing turbidity (U.S. Fish and Wildlife Service 1993c, Hesse 1994). Impacts of channelization include narrowing the river, reducing habitat diversity, and reducing overbank flooding (U.S. Fish and Wildlife Service 1993c, Hesse 1994). Additional pressure likely resulted from stocking high densities of piscivorous fish, removing habitats by sand and gravel extraction operations and snag removal, loss of range and abundance of aquatic insects, and altering water quality by industrial and agricultural pollution (U.S. Fish and Wildlife Service 1993c, Hesse 1994). These conditions continue to threaten the species, particularly tributary populations.

The Platte River is one of the largest tributaries of the Missouri River and the only one below Gavins Point Dam that carries spring snowmelt from the Rocky Mountains to the lower part of the basin. The lower reach of the Platte River has several tributaries, some of which are groundwater fed, that contribute to higher discharge and relatively constant flows compared to upstream reaches. Peak annual discharge in the lower Platte River occurs between February and June (USGS gaging station at North Bend). Sediment concentration also is highest in spring and early summer. Approximately 80 percent of the total annual amount of sediment in the lower Platte River is delivered with the high flows (USGS data for Louisville 1972-1976). In-channel fish habitats, such as snags, sandbars, backwaters, and pools, are produced by these high sediment-load discharges that are not available in the channelized Missouri River. Collections of sturgeon chub in the lower Platte River in July of 1989 were during average discharge, and in September 1991 during higher than average discharge.

The sturgeon chub has been collected in 14 States from Montana to Louisiana in the main stem Missouri and lower Mississippi rivers, and many Missouri River tributaries (U.S. Fish and Wildlife Service 1993c). Nebraska is one of five States where sturgeon chub have recently been collected. Within the State, only two of the previous six rivers where it was found historically have maintained populations. The lower Platte River is therefore, significant habitat for the sturgeon chub in which turbidity levels and discharge must at least be maintained if the small existing population is to survive and to provide potential habitat for the recovery of the species. Owing to the precarious state of sturgeon chub populations throughout its range and to cumulative and ongoing water development throughout the Platte River Basin, proposed flow depletions must, therefore, be evaluated for their effect on sturgeon chub.

Further information about the biology and status of the sturgeon chub can be found in Appendix L of this biological/conference opinion.

ENVIRONMENTAL BASELINE

Under the provisions of section 7(a)(2) of the Act, when considering the "effects of the action" on Federally listed species, the Service is required to take into consideration the environmental baseline. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area (50 CFR § 404.02), including Federal actions in the area that have already undergone section 7 consultation or are contemporaneous with the consultation in progress. The "BACKGROUND" section above provides a detailed discussion of some of the past Federal projects which are part of the environmental baseline.

In addition to surface water depletions, groundwater depletions have occurred in the past and are continuing today with resultant adverse impacts to the environmental baseline. No current figures are available on the magnitude of these depletions to the Platte River beyond those presented below in the "CUMULATIVE EFFECTS" section. As stated above in the "BACKGROUND" section, the Platte River resource is (and has been for some time) in a state of jeopardy. Therefore, any and all past and current groundwater depletions are contributing to this jeopardy situation.

EFFECTS OF THE ACTION

Under section 7(a)(2) of the Act, "effects of the action" refers to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action. Under section 7, the lead Federal Agency is responsible for these effects. Should the effects of the proposed Federal action result in a jeopardy situation, the Service may propose reasonable and prudent alternatives that the Federal Agency can take to avoid violation of section 7(a)(2). The impacts discussed below are the result of direct and indirect impacts of the proposed Federal Agency actions described in the "PROJECT DESCRIPTION" section of this biological opinion. Indirect effects are those caused by each proposed action and are later in time, but still are reasonably certain to occur (50 CFR § 402.02).

Hydrologic and Physical Effects

As previously mentioned, water development activities in the Platte River Basin over the past 140 years have already depleted annual flows in the central and lower reaches of the Platte by about 70 and 40 percent, respectively. Therefore, accomplishment of each proposed Federal Agency action described above will result in an additional or continued water depletion to the Platte River system, and further deteriorate the remaining aquatic and terrestrial habitat conditions which currently exist there.

Maps of the Fort Kearny to Grand Island area produced in 1847 indicate extensive areas of wetlands, "sloughs," and "bayous" in the Platte River valley. However, both springtime discharges and wet meadow acreage have decreased substantially during the past century (Williams 1978, Currier et al. 1985, Sidle et al. 1989). About 112,800 acres of wet meadow in the Platte and North Platte River valleys were converted to other uses between 1938-1982. The area of wet meadows in the central Platte River valley declined by 55 percent during the same period and continues to exhibit a downward trend (Sidle et al. 1989). Groundwater levels in the central Platte River valley (Lexington to Chapman, Nebraska) help maintain about 11,330 acres of remaining wetland meadow habitat (Sidle et al. 1989), or about 4.8 percent of the area of the Platte River valley near the river. However, the effective habitat value of remaining wetland meadows is further reduced due to the small size and fragmentation of the parcels.

During the past 80 years, woody vegetation has developed across wide expanses of the streambed. Presently, much of the former river channel is dominated by woodland and surrounded by cropland. Dams have dramatically reduced the amount of alluvium reaching the central Platte River (Lyons and Randle 1988). The 62-mile reach from the confluence of the North and South Platte rivers to the J-2 Hydropower Return near Lexington, Nebraska, is forested and no longer used by whooping cranes and is unsuited for least tern or piping plover nesting. The 37-mile reach from the J-2 Hydropower Return to Kearney also is heavily forested, and migratory birds which require open alluvial habitats are abandoning this reach (Faanes and LeValley 1993). Most of the remaining open alluvial habitat of the central Platte River is located in short segments of the 40-mile reach between Kearney and Grand Island, Nebraska.

Over the course of a six-year study period (i.e., 1988 to 1994), Currier (1995) documented a trend towards continued loss of riverine open-channel habitat area in the 55-mile long, Kearney to Chapman, Nebraska reach of the central Platte River. It was determined that the loss of remaining open-channel area within this reach ranged from 4 to 41 percent (i.e., average of 26 percent). In river segments where the channel had already narrowed significantly, and at sites where channel habitat is actively managed, declines were in the range of 17 to 18 percent. These substantial changes occurred during a time that included a relatively low flow period (i.e., 1990 to 1992) which allowed woody vegetation to become established. A relatively high flow event (i.e., 12,000 to 16,000 cfs range) during June and July 1995, was effective in removing only a fraction of the newly developed growth. As vegetation becomes permanently established in the river channel, the habitat available to whooping cranes, sandhill cranes (Grus canadensis), least terns, piping plovers, and other migratory bird species for feeding, nesting, and roosting purposes declines.

In contrast to what Currier (1995) documented concerning a continued negative trend in the loss of riverine open-channel habitat along the central Platte River; a recent report by Johnson (1996) concludes that Platte River channels are in "dynamic equilibrium." The basis for this conclusion was derived from analyses of several types of information including time trend measurements of open-channel and woodland areas on aerial photographs from 1986 to 1995. The report also speculates that some channel narrowing may have been caused by sediment overload from upstream vegetation management to widen channels for cranes. However, unlike Currier (1995), Johnson (1996) examined channel area only and did not quantify any changes in unobstructed channel width which influences the availability of essential habitat. Johnson (1996) also assumed that hydrologic patterns of recent years will continue and thus does not address the subject of future additional water depletions and their effect upon remaining Platte River in-channel habitat conditions.

The Service realizes that individual and cumulative water depletions resulting from the proposed Federal Agency actions covered by this biological opinion constitute a relatively small proportion of the total depletions in the Platte River system. These depletions, nonetheless, contribute to the incremental depletions within the Basin, and similarly, to a portion of the adverse effect on Platte River habitat.

Depletions resulting from each of the proposed Federal Agency actions during May and June occur during the period when high flows are important for maintaining wet meadows and channel morphology. Depletions which occur during May through September are likely to contribute to adverse effects on least tern and piping plover nesting habitat and on habitat of forage fish used by least terns and bald eagles. The frequency of elevated water temperatures during summer, which adversely affects the forage fish community, is inversely related to flow levels (Dinan 1992). Fish kills reported in six of the last

103

eight years in the central Platte River are attributed to low flows and elevated temperatures.

High spring runoff appears to be elemental in the ecological maintenance of the Platte River. Physical and biological processes associated with high flows and river stage help maintain habitats used by the eight listed and one candidate species. Decreases in river stage and discharge during normal high flow periods will likely adversely affect groundwater levels in wetland meadows (Hurr 1983, Henszey and Wesche 1993), sediment transport and channel maintenance (Lyons and Randall 1988), and various aspects of aquatic ecology (U.S. Fish and Wildlife Service 1993b), all of which are essential processes for long-term maintenance of required habitats. Depleted spring flows are believed to promote seedling establishment and woodland expansion along the river (Johnson 1994) which adversely affect channel maintenance.

Periodic saturation near the soil surface is necessary to maintain physical, biological, and chemical characteristics of wetland habitats associated with the river. River stage and discharge are the most dominant hydrological influences on groundwater levels of subirrigated wet meadows (Henszey and Wesche 1993); and groundwater levels respond rapidly to changes in river stage (Hurr 1983). Groundwater levels during spring (i.e., mid-February through June) are probably most important for maintaining wet meadows for listed species; and reduced river stage and discharge during spring would likely affect the hydrology in these wet meadows.

Basin runoff in May and June is associated with mountain snowmelt. Peak flow is during the active growing season of wet meadow organisms and corresponds with maximum groundwater levels. High groundwater levels likely have a dominant influence on lower trophic levels and on the long-term ecological maintenance of aquatic and semi-aquatic communities in wet meadows.

Depletions which occur during May and June, however minor, contribute, proportionally, to the incremental and cumulative reduction of groundwater levels and decreases in the frequency and duration of saturation near the soil surface. Incremental and cumulative changes in the structure and function of wet meadows toward more xeric conditions would likely result. Biological productivity of aquatic and semiaquatic wet meadow communities would likely be adversely affected. Decreased frequency of saturated soils would likely contribute to conversion of wet meadows to other uses and facilitate fragmentation of meadow habitat.

The depletion resulting from each proposed Federal Agency action during high runoff periods also will likely have a relatively minor but cumulative adverse effect on sediment transport processes in the Platte River. Lyons and Randall (1988) identified flows between 1,000 and 10,000 cfs as those which provide sediment loads that maintain channel morphology. Johnson (1994) identified high flow during late spring (mainly June) as a primary factor affecting seedling recruitment. Decreased flows in June result in increased seedling recruitment on exposed sandbars. System depletions, attributable in a small part to each of the Federal Agency actions, thereby, cumulatively contribute to forestation and loss of wide alluvial channels.

The net effects of water development activities and other various actions include continued and increased consumption of Platte River Basin water resources, continued trapping of sediment behind dams and deteriorated sediment transport processes, degradation of habitat by expansion of bank stabilization efforts, expanded destruction of habitat by sand and gravel mining operations, increased conversion of native grasslands to other uses, increased human disturbance resulting from conversion of abandoned sand and gravel pits to "lakeside" housing developments, conversion of wetland meadow habitat to cropland and other uses, loss of riverine roosting habitat for whooping cranes due to vegetative encroachment and channel narrowing, and high incidences of predation on least terns and piping plovers exacerbated by existing and continuing habitat degradation.

Arresting habitat loss and enhancement of the existing, severely degraded Platte River ecosystem are components in the continued existence of the whooping crane, least tern, piping plover, pallid sturgeon, and the candidate sturgeon chub. The severity and extent of habitat degradation and destruction existing within the Platte River valley ecosystem have resulted principally from environmentally untempered economic development of Platte River Basin water resources. These Platte River habitat conditions and the precarious population statuses of these five species lead the Service to conclude that the survival and recovery of these species cannot be ensured under existing, ongoing, and deteriorating environmental conditions.

Whooping Crane

The effect of the impacts described above is that incremental depletions from each of the proposed Federal Agency actions, though relatively minor, would nonetheless contribute to cumulative loss of wet meadows, wide channel habitats, and aquatic habitat within the channel, and thus the destruction or adverse modification of roosting and foraging habitat along the central Platte River. Migrating whooping cranes are less likely to use degraded habitat and would likely be required to seek alternatives or less suitable habitats. This adversely affects the security and resting and foraging efficiency and, consequently, the security, nutrition, and physiological condition of migrating whooping cranes.

The availability of adequate security, resting, and foraging conditions during spring migration ensures that birds arrive in a healthy condition on the breeding grounds at Wood Buffalo. Healthy birds are essential for successful reproduction and, ultimately, the survival and recovery of the species. The health and survival of whooping cranes are dependent upon the condition and abundance of their habitat. Like other migratory birds with delayed sexual maturity and life-long pair bonds, whooping cranes adhere to ancestral breeding areas, migratory routes, and wintering grounds, leaving little possibility of pioneering into new regions. The importance of maintaining traditional habitats such as the Platte River is amplified by impacts from ongoing conversion of pothole and prairie to hay and grain production, which has eliminated much of the whooping cranes historic range (U.S. Fish and Wildlife Service 1994g).

105

Although whooping crane numbers in the wild have increased from the low of 16 birds in 1941, it remains one of the rarest species. One non-migratory population became extinct in 1950, and intensive efforts to establish other breeding populations in the wild have not succeeded. The Aransas-Wood Buffalo population is the single remaining breeding population in the wild. It remains susceptible to catastrophic loss from factors such as storms, disease epidemic, or toxic contamination of the environment, and remains potentially vulnerable to genetic depression from the small founding population. Survival and recovery of the whooping crane continues to be inextricably dependent on the survival and recovery of the Aransas-Wood Buffalo population, which is dependent upon a number of interrelated factors, including the availability of suitable habitat along the migration route.

The relevance of critical habitat protection to this biological opinion is that a 56-mile reach of the central Platte River is designated critical habitat for migrating whooping cranes, that an estimated 83 percent of whooping crane mortality occurs during migration and nesting, that the Whooping Crane Recovery Team considers habitat modification a mortality factor affecting loss of individuals and decline of the species, and that the key to whooping crane recovery (and by implication survival) is reduction of mortality during migration (U.S. Fish and Wildlife Service 1994g). Consequently, the Service believes that each of the proposed Federal Agency actions will result in the destruction or adverse modification of whooping crane critical habitat and that habitat loss would likely jeopardize the species' survival.

Least Tern and Piping Plover

Because of long-term habitat degradation, few least terns and piping plovers utilize sandbar nesting habitat along the central Platte River during the May through August breeding season (see Table 4 in Appendix E). Consequently, most of the birds now nest on sand pits because there is little suitable habitat for nesting in the river channel (Ziewitz et al. 1992, Sidle and Kirsch 1993). However, both species still rely heavily on the river channel as their principal foraging area (Corn and Armbruster 1993a). Remaining riverine nesting habitat should be protected by adequate flows, which create sandbars, isolate nest sites from mammalian predators and human disturbance, and provide a diversity of shallow and deep water areas for foraging. Failure to protect remaining habitat even in a small measure will make species recovery more difficult. Species recovery entails reaching certain population goals, as well as reaching certain goals for the protection of physical habitat.

As described above for the whooping crane, streamflow depletions and the associated cumulative and incremental reduction of sediment load duration caused by each of the proposed Federal Agency actions would likely contribute to further incremental vegetation encroachment and forestation of open alluvial riverine habitat (Lyons and Randall 1988, Johnson 1994). The continued expansion of woody vegetation along the river channel would increase vulnerability of nesting least terns and piping plovers to predation. Bare or sparsely vegetated habitats of a broad, alluvial river channel required by least terns and piping plovers for nesting would be reduced. Peak flows, which have been associated with the creation and maintenance of sandbars used for nesting (Ziewitz et al. 1992, Sidle et al. 1992), would be incrementally diminished by project operations.

Streamflow depletions during the breeding season may directly adversely affect piping plover and least tern breeding success and populations in several ways. First, least tern and piping plover nest initiation may be inhibited if the expanse of water in the channel is extremely low. If there is little or no water, the birds will not be able to forage and initiate nesting. Second, low flows early in the breeding season expose low-lying sandbars during the period when nest sites are selected and nesting is initiated. Nesting habitat along the central Platte River consists of low-lying islands because peak flows are generally inadequate to create higher elevation islands, the preferred nesting habitat of both species throughout their river ranges (see discussion on nesting site elevations in Appendix E). Low-lying areas are subject to flooding by relatively minor flow changes that frequently occur during the nesting season (egg laying, incubation, and brooding periods) resulting in flooding of nests and mortality of eggs and chicks (Lingle 1993a and 1993b). Third, reductions of wetted channel during the nest initiation, incubating, and brooding periods increase the vulnerability of nests, eggs, and chicks to terrestrial predators and human-caused disturbances. Fourth, depletions would reduce aquatic habitats used as foraging areas and reduce habitat of forage fish required by least terns. The availability of suitable Platte River habitat for the least tern is a function of the abundance, diversity, and population structure of the Platte River forage fish community, which in turn mirror the quality, frequency, duration, and magnitude of flows in the Platte River. The relationships between river flow and fishery habitat are described in Appendix H.

During the least tern and piping plover breeding season, each proposed Federal Agency action would deplete stream flows in all months of the least tern and piping plover nesting season. Monthly flows in the central Platte River are frequently below target flow levels necessary to maintain least tern and piping plover nesting habitat. Wetted area is a discharge-dependent variable of least tern and piping plover sandbar nesting habitat affected by flow depletions (U.S. Fish and Wildlife Service 1987c). Loss of river channel wetted area represents a loss of essential foraging habitat and reduced security for nesting sites.

Depletions resulting from each proposed Federal Agency action affect flows which maintain fishery habitat. While monthly flows provide a gross indication of effects on fishery habitat, short-term (i.e., daily or instantaneous) low flows can have added long-term biological consequences. Monthly depletions would likely increase the frequency or duration and reduce the magnitude of these minimum flows.

In summary, relatively minor but incremental depletions are likely to jeopardize least terns and piping plovers by contributing cumulatively, to increased chick mortality; by reducing breeding efficiency and energetics; by reducing foraging efficiency; and by causing loss of open channel and suitable sandbar nesting habitat. These would likely ultimately contribute to decreases in the range, distribution, and reproductive success of each of the two species, potentially decreasing the likelihood of their survival and recovery. This is the Service's opinion based upon the best existing scientific data on the habitat requirements of both species and habitat trends that have occurred throughout the species' river ranges.

Western Prairie Fringed Orchid

Dewatering and conversion of habitat are primary factors adversely affecting the western prairie fringed orchid throughout its range. Because river discharge and stage are dominant factors influencing groundwater levels in the Platte River valley, depletions resulting from each proposed Federal Agency action during spring will likely contribute, cumulatively, to reduced frequency and duration of saturated soil conditions. Decreased frequency and duration of soil saturation would result in more xeric conditions in low-lying areas. This would likely facilitate conversion of low-lying native grassland and wet meadows habitats to other uses, such as intensive agriculture, in which the western prairie fringed orchid could not survive.

Incremental and cumulative conversion, fragmentation, and dewatering of low grassland and meadow habitats may adversely affect the western prairie fringed orchid by eliminating habitat; reducing its potential range and distribution; preventing or retarding expansion, colonization, or recolonization; and decreasing the resilience of isolated populations to fluctuations caused by environmental stochasticity. However, none of the proposed Federal Agency actions are likely to jeopardize the continued existence of the species. This is predicated on the species occurrence elsewhere in Nebraska besides the central Platte River (i.e., Mormon Island), and the presence of extant populations in a variety of different habitat areas within six other States and one Canadian Province.

American Burying Beetle

Loss and fragmentation of habitat is suspected to be a primary factor of the American burying beetle's decline (U.S. Fish and Wildlife Service 1991). Though the beetle has been found in low areas near wetlands, it is not known that this species necessarily relies on wetlands. However, in the Platte River valley, low grasslands and wetlands occur in complexes. Factors that affect wet meadows typically influence low grasslands as well. Because river discharge and stage are dominant factors influencing ground water levels in the Platte River valley, the depletions caused by each proposed Federal Agency action during spring will likely contribute, cumulatively, to reduced frequency and duration of saturated soil conditions. Reduced frequency of soil saturation would, in turn, facilitate conversion of low-lying grasslands, which provide habitat or potential habitat of the American burying beetle, to other uses. The cumulative loss of such grasslands may adversely affect the American burying beetle by eliminating habitat and by promoting further fragmentation of habitat and isolation of possible beetle populations. However, none of the proposed Federal Agency actions are likely to jeopardize the continued existence of the species. This is primarily due to the occurrence of the species elsewhere in Nebraska outside of the Platte River valley, and the presence of extant populations in a variety of habitat areas within five other States and one Canadian Province.

Bald Eagle

The life history of the bald eagle is associated with aquatic habitats, as this is its primary foraging habitat. Streamflow conditions of the Platte River are, at times, below those required to sustain suitable aquatic habitat for larger individuals of forage fish. As described above for least terns, each of the proposed Federal Agency action depletions would incrementally diminish fish habitat during some periods. In addition, depletions during the spring period would likely contribute to reduction or fragmentation of grassland and wet meadow habitat parcels. Conversion and fragmentation of grassland and wet meadows would likely decrease habitat of Canada geese, mallards, and other waterfowl and all prey items of the eagle in the central Platte River valley. The vast majority of the valley landscape is row crop.

The cumulative loss of fishery habitat would likely have some degree of adverse effect on the foraging efficiency of the bald eagle. Bald eagles would more frequently need to rely on forage sources that are either more scarce, less desirable, or more difficult to obtain. Bald eagles may need to move to other locales along the Platte River or to other regions. Water depletions during high flow periods may contribute to expansion of woodlands, thereby increasing forested areas which provide winter protection for the species.

The bald eagle is becoming widely distributed and populations are currently increasing throughout much of its range. The adverse effects resulting from each of the proposed Federal Agency action depletions may influence local Platte River wintering food sources, which may affect foraging efficiency and the condition of wintering bald eagles, and would likely require that alternatives types of prey be more frequently used. However, because the bald eagle's population is increasing throughout its range, none of the proposed Federal Agency actions are likely to jeopardize the continued existence of the species.

Eskimo Curlew

Extremely large populations of Eskimo curlew once congregated in low grassland meadows in the Platte River valley, suggesting this habitat may have played a pivotal role in the species' life cycle. The effects of each proposed Federal Agency action will likely perpetuate and promote further incremental degradation of migrational habitat. Incremental reduction of river stage would affect groundwater aquifer levels, which would contribute incrementally to the cumulative reduction of low-lying native grassland and wet meadows as they are converted to other uses. Changes of low prairie areas toward drier conditions would affect the productivity of insects that would be used as forage. The cumulative loss of low-lying grasslands may adversely affect foraging efficiency, physiological condition, and, possibly, necessary socialization of migrating Eskimo curlews that use the Platte River. Because Eskimo curlew observations in the Platte River valley are extremely rare (as they are throughout the rest of the species' range) and information on their habits is limited, the continuing role of Platte River habitats and the degree of the potential adverse impacts of flow depletions on this species are difficult to gauge. However, based on existing limited information, the Service believes that none of the proposed Federal Agency actions are likely to jeopardize the continued existence of the species.

Pallid Sturgeon

Available scientific information indicates pallid sturgeon use of the lower Platte River and Missouri River near the Platte River confluence is associated with high spring flows. Conditions prevailing during this period are increasing river discharge and rising stage, water temperatures potentially suitable for spawning or staging for spawning, high turbidity, high concentrations of suspended sediment, and a high sediment load. These conditions are favorable to, and perhaps critical for, the survival and recovery of the pallid sturgeon.

Evidence suggests that functional use of the lower Platte River is most likely affected by hydrological characteristics during the spring and early summer. The period of peak annual discharge for the lower Platte River occurs during the February though June time frame. Substantial depletions of flows have occurred during high runoff periods over the past century (Williams 1978, Eschner et al. 1983).

Available knowledge of the life history of sturgeon (Acipenseridae), the ecology of pallid sturgeon and other large river fishes of the Missouri River system, and the importance of the river's major tributaries leads the Service to conclude that depletions during the spring period may adversely affect an array of important variables of pallid sturgeon habitat including: in-channel habitat structure for the pallid sturgeon and fish it preys upon; turbidity affecting feeding efficiency of pallid sturgeon; nutrient flow affecting composition and abundance of species of forage fish community; temperature, gonad maturation, and spawning behavioral cues; and interspecific competition for habitat with other species such as the shovelnose sturgeon (Scaphirhynchus platorynchus). Depletions of spring pulse flows may adversely affect essential characteristics of pallid sturgeon habitat which would ultimately reduce the species' range, alter normal behavior patterns, and reduce its reproductive capacity.

The continued survival of the pallid sturgeon in the wild remains extremely tenuous. Continued and, possibly, enhanced pallid sturgeon use of the Platte River and that segment of the Missouri River affected by the Platte River is critical to the species' survival and recovery. Best available information indicates that if pallid sturgeon spawning occurs or were to occur successfully in the lower Missouri River Basin, probably during the April through July time frame, such spawning may occur in or near the lowermost segment of the Platte River. If, on the other hand, successful spawning of the pallid sturgeon does not occur in the lower Missouri River Basin, the survival and recovery of the species would continue to be in jeopardy and recovery could not be achieved. Therefore, it is the Service's opinion that any proposed Federal Agency action resulting in a water depletion to the lower Platte River during the six-month period of February through July is likely to jeopardize the continued existence of the pallid sturgeon.

Sturgeon Chub

Available scientific information indicates that extant populations of sturgeon chub are located in the lower Platte River, and Missouri River downstream from the Platte River. Conditions of ripe fish suggest that spawning occurs in June and July. This is a period when Platte River discharges are high, water temperatures are suitable for spawning, and the river carries a high sediment load. These conditions are favorable to, and perhaps critical for, the survival and recovery of the sturgeon chub.

Reservoirs and channelization have impacted sturgeon chub populations in the Missouri River by flooding riffle habitats, altering flow and temperature regimes, reducing turbidity, and reducing habitat diversity. The Platte River is the only Missouri River tributary below Gavins Point Dam that originates in the Rocky Mountains, and contributes high discharge and sediment loads to the Missouri River. The peak annual discharge for the lower Platte River occurs during the February through June time frame. The lower Platte River appears to be significant habitat for the sturgeon chub, and discharges into the Missouri River may be important in maintaining sturgeon chub habitat in the Missouri River. Therefore, any proposed Federal Agency action resulting in a water depletion to the lower Platte during the February through July period may adversely affect essential characteristics of sturgeon chub habitat which would ultimately reduce the species' range, alter normal behavior patterns, and reduce its reproductive capacity; hence jeopardizing the likelihood of the species continued survival and existence.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Actions resulting in groundwater depletions in the Platte River Basin are likely to have a cumulative effect upon the fish and wildlife species of concern. For instance, the Platte River Level B Study team estimated that increased groundwater pumping, if unchecked, would deplete Platte River flows at Overton, Nebraska by at least 330,000 af over the next 40 years (U.S. Fish and Wildlife Service 1979). In addition, the amended biological opinion for the Riverside Irrigation District's proposed Wildcat Creek Reservoir project in Colorado stated that future groundwater development in Nebraska will allow an additional 1.8 million acres to be irrigated, which represents the maximum potential of groundwater development (U.S. Fish and Wildlife Service 1982).

Consequently, under present conditions and without further effort to help restore Platte River habitat utilized by Federally listed and designated candidate species, any amount of additional groundwater depletions will further exacerbate an already tenuous situation that is in a state of jeopardy. Because the outcome of changes to Nebraska State water laws regarding conjunctive use may alter estimates of groundwater pumping, without further information it is difficult, if not impossible, to predict how much of future groundwater depletions would be reasonably certain to occur within the affected action area.

REASONABLE AND PRUDENT ALTERNATIVES

Regulations (50 CFR §402.02) implementing section 7 define reasonable and prudent alternatives as alternative actions, identified during formal consultation, that (1) can be implemented in a manner consistent with the intended purpose of the action, (2) can be implemented consistent with the scope of the action agency's legal authority and jurisdiction, (3) are economically and technologically feasible, and (4) would avoid the likelihood of jeopardizing the continued existence of listed species or resulting in the destruction or adverse modification of designated critical habitat.

To avoid the likelihood of jeopardy to Federally listed species and destruction or adverse modification of designated critical habitat stemming from minor water depletions (i.e., 25 af or less per year or as otherwise indicated) to the Platte River system; Federal action agencies and/or project proponents will be required to comply with one of the reasonable and prudent alternatives described below.

Replacement of Depleted Water

If a project proponent is capable and willing to replace the annual depleted amount of water with an equal amount of water from a source approved by the Service on an annual recurring basis for the life of the project; the lead Federal Agency should initiate informal section 7 consultation with the Service to coordinate an agreement for accomplishing this in order to off-set the adverse effects of the proposed action upon Platte River resources.

Funding for Aquatic and Terrestrial Habitat Restoration

In the event the depleted amount of water cannot be replaced by a project proponent in the manner described above, the U.S. Forest Service contribution of $95,000 (U.S. Forest Service 1996), along with contributions by other Federal Agencies, will be used to substitute for the amount of monetary contribution that would otherwise result from individual section 7 consultations for existing project depletions of 25 af or less per year as described below, regardless of which Federal Agency is carrying-out the action. In addition, these Federal contributions also will be used to off-set the adverse effects upon Platte River resources stemming from new project minor depletions (i.e., 25 af or less). Alternatively, in consultation with the Service, a Federal Agency may require each project proponent to make this contribution prior to the action being authorized, funded, permitted, licensed, or otherwise carried out; or opt to make a one-time monetary contribution for each new or existing project action (as they occur) that is determined to result in an annual depletion of 25 af or less as described below. The monetary contributions made by the Federal Government and other entities will be deposited into an account established with the Foundation and expended for habitat restoration along the central Platte River as described above in the "BACKGROUND" section and Appendix A.

As previously mentioned in this biological opinion, the geographic location of a proposed Federal Agency action within the Basin determines which river reaches (i.e., central and/or lower Platte) and Federally listed species may be adversely effected by that project's depletion. In addition to geography, whether or not such an action results in a new or existing project depletion is another factor influencing the means to determine the amount of money which should be applied toward Platte River habitat restoration. And in the case of the lower Platte River, another factor that must be considered is the timing and duration of a project's depletion during the year. These factors and other considerations are taken into account in the formulas described below which the Service will use in calculating aquatic and terrestrial habitat restoration and maintenance costs for the affected Platte River resources. The calculated costs for each project depletion will be debited from the funds available in the Foundation account.

Existing projects which result in annual water depletions of 25 af or less to the Platte River system upstream from Chapman, Nebraska: The annual depletion amount determined for each project will be factored into the similar formulas used in the biological opinions for the U.S. Forest Service projects (U.S. Fish and Wildlife Service 1994a, 1994b, 1994c, 1994d, 1994e, and 1994f) which also calculated aquatic and terrestrial habitat restoration and maintenance costs for the affected Platte River resources. However, a value of $37 per af for acquiring water will be used in the formula instead of the amount previously used. This value represents an estimated average annual cost for conserving an acre-foot of water through application of several different types of water conservation measures for crop irrigation systems in the Platte River Basin (J. Lawson, Bureau, Pers. Comm.). In addition, the formula is further modified by not dividing the cost of acquiring, restoring, and maintaining riverine and wetland meadow habitat by a given number of years associated with the life of the project. Consequently, the product of this formula will represent a one-time amount for off-setting the adverse affects to the Platte River resources resulting from a minor water depletion of 25 af or less per year. That amount for each project depletion will then be debited from the funds available in the Foundation account until it has been exhausted (which triggers the need to reinitiate intra-Service section 7 consultation); or deposited into the account by a Federal Agency or another project proponent entity, whatever the case may be. The application of this formula for a proposed project as described above is illustrated in Appendix M of this biological opinion.

Proposed new projects which result in additional annual water depletions of 25 af or less to the Platte River system upstream from Chapman, Nebraska: The aquatic and terrestrial habitat restoration and maintenance costs will be calculated a little differently than those for existing projects. These costs will be derived from the relationship of a new project's annual depletion to the average annual Platte River flow as gaged at Grand Island, Nebraska (i.e., 1,136,000 af according to U.S. Fish and Wildlife Service 1994a, 1994b, 1994c, 1994d, 1994e, and 1994f). This relationship (i.e., in terms of a percentage) will then be applied toward (a) the total estimated riverine and wet meadow habitat area remaining along the central Platte River in Nebraska from Lexington to Chapman (i.e. 81,170 acres according to Sidle et al. 1989), and (b) the estimated average annual cost to acquire, restore, and maintain an acre of such habitat (i.e., $2,500 per acre according to U.S. Fish and Wildlife Service 1994a, 1994b, 1994c, 1994d, 1994e, and 1994f). The end product of this calculation will determine a project's cost for terrestrial habitat restoration and maintenance. The cost for aquatic habitat restoration is calculated by multiplying a project's annual depletion amount by a cost factor of $37 per af for water acquisition (J. Lawson, Bureau, Pers. Comm.). The sum of these calculated costs serves to off-set the adverse effects of a proposed project's annual water depletions to Platte River fish and wildlife resources of concern. Refer to Appendix M for a depiction of the formula described above.

Proposed Federal Agency actions involving either existing or new projects resulting in water depletions of 25 af or less to the Platte River system downstream from Chapman, Nebraska during February through July of each year: The following methodology will be used in calculating a one-time aquatic habitat restoration cost for each project: (a) multiply the amount of a project's depletion that would occur each year during February through the end of July, by (b) the $37 per af cost factor for water acquisition (J. Lawson, Bureau, Pers. Comm.). There is no need to calculate terrestrial habitat restoration and maintenance costs for such project depletions to the lower Platte River system because the pallid sturgeon and sturgeon chub are the Federally listed and designated candidate species likely to be jeopardized by these actions within this reach of the river. Refer to Appendix M for a depiction of the calculation described above.

Management of Contributed Funds: The Service believes the monetary contributions to the Foundation account from the Federal Government and other entities allows the current section 7 consultation approach to be modified in order to streamline coordination with lead Federal Agencies as described above in the last five paragraphs of the "PROJECT DESCRIPTION" section. Improving the efficiency of section 7 consultation and reducing the impact of the Act's administration on the general public also should facilitate restoration of Platte River habitat and recovery of Federally listed species. The contribution of funds prior to the authorization of proposed Federal Agency actions improves the Service's ability to implement recovery objectives for Federally listed species of the Platte River by making funds immediately available. These monetary contributions to the Foundation account and their expenditure consistent with the terms and conditions of the cooperative agreement between the Service and the Foundation (refer to Appendix A), serve as one of the reasonable and prudent alternatives for each proposed Federal Agency action addressed by this biological opinion that results in an annual water depletion to the Platte River system of 25 af or less as described above. Likewise, these contributions also improve the Service's ability to implement recovery actions for Federally listed species along the Platte River.

The Service will monitor the status of the Foundation account to determine when the funds have all been debited toward off-setting the adverse effects to Federally listed species and their habitats due to future projects resulting in minor water depletions to the Platte River system. When all such Foundation account funds have been debited in this manner, it will become necessary to reinitiate intra-Service section 7 consultation as required by the Act. Likewise, the need to reinitiate consultation also will be triggered if the Program described above in the "BACKGROUND" section is not implemented by October 1, 1999.

It is envisioned that the Program will provide reasonable and prudent alternatives to avoid the likelihood of jeopardy to Federally listed species and to off-set any destruction or adverse modification of designated critical habitat so existing and future water development projects in the Platte River Basin subject to section 7 consultation under the Act can receive any required permits, licenses, funding, or other approvals and be in compliance with the Act. Consequently, any funds contributed to the Foundation account by Federal Agencies or project proponents pursuant to this biological opinion that have not been expended at the time the Program is enacted will still be applied

114

toward their original intended purpose in support of the Program. Therefore, the result of this intra-Service consultation will be to streamline future formal consultations required by section 7 of the Act, without compromising the conservation of Federally listed and designated candidate species within the Platte River Basin.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal Agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

The Service has been an active participant in the conservation of Platte River resources for decades. Critical habitat for the whooping crane is designated on the central Platte River in Nebraska, and recovery plans exist for each of the Federally listed species jeopardized by the minor water depletion effects resulting from the Federal Agency actions described in this biological opinion. In addition, the Service has been actively promoting the conservation of Platte River resources and pursuing the implementation of the recovery plan objectives. It is evident that the success of these efforts is dependent on a partnership of all stakeholders who share regulatory authority for the stewardship of aquatic and terrestrial habitat resources within the Platte River Basin. To demonstrate its continuing commitment to the conservation of Platte River resources, the Service will accomplish the following initiatives using its authority under section 7(a)(1) of the Act:

- o The Service will (a) continue to work closely in partnership with all other agencies having regulatory authority for the stewardship of aquatic and terrestrial habitat resources in the Platte River Basin and (b) actively solicit their monetary commitment to help restore these habitat resources for the benefit of Federally listed and designated candidate species. With such a commitment by Federal Agency stakeholders to help implement specific recovery objectives for Platte River fish and wildlife resources, the Service can be assured that the adverse effects of minor water depletions (i.e., 25 af or less per year) resulting from Federal Agency actions will be sufficiently off-set to allow the streamlined section 7 consultation approach described in this biological opinion to continue even if a Program is not implemented.

- o The Service will contribute funds to an existing Foundation account to help restore Platte River habitat for Federally listed and designated candidate species. The timing and amount of this contribution will not be known until sometime after the annual Service budget is authorized by Congress and signed by the President.

CONCLUSION

This concludes formal consultation and conference on the proposed Federal Agency actions described above. As required by 50 CFR 402.16, reinitiation of formal consultation is required if (1) the amount or extent of incidental take is exceeded, (2) new information reveals effects of an agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, (3) the agency action is subsequently modified in a manner that causes an adverse effect to the listed species or critical habitat that was not considered in this opinion, (4) a new species is listed or critical habitat designated that may be affected by the action, (5) funds available in the Foundation account have all been debited toward off-setting the adverse effects of Federal Agency actions resulting in minor water depletions to Platte River resources as required by the reasonable and prudent alternatives, or (6) the Program referred to and described above in this biological opinion is not implemented by October 1, 1999, as required by the reasonable and prudent alternatives. In instances where incidental take occurs (anticipated take is zero), any operations causing such take must cease pending reinitiation. To facilitate reinitiation of consultation, each proposed agency action should be conditioned in a manner which enables an agency to reinitiate consultation and, subsequently, modify the action.

The Assistant Regional Directors may request that the Regional Director adopt the conference opinion incorporated in this consultation as a biological opinion issued through formal consultation if the sturgeon chub is listed or if critical habitat is designated. The request must be in writing. If the Service reviews a proposed Federal Agency action and finds that there have been no significant changes in the action as planned or in the information used during the conference, the Service will adopt the conference opinion as the biological opinion on the proposed action and no further section 7 consultation will be necessary unless required by 50 CFR §402.16.

The incidental take statement provided with this conference opinion does not become effective until the sturgeon chub is listed and the conference opinion is adopted as the biological opinion issued through formal consultation. At that time, each of the proposed Federal Agency actions will be reviewed to determine whether any take of the species has occurred. Modifications of the opinion and incidental take statement may be appropriate to reflect that take. No take of the sturgeon chub may occur between the listing of the species and the adoption of the conference opinion through formal consultation, or the completion of a subsequent formal consultation.

Terry Terrell

Attachments

TERRY T. TERRELL

END

09-14-99